The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 75, No. 12 CHICAGO, ILLINOIS SEPTEMBER 18, 1920

OCCULTISM AND INSANITY*

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The times are out of joint. The world is not crushed or dismembered or otherwise in hopeless condition, and recovery from its injuries may be anticipated with the cheerful assurance that it will in time and in accordance with the laws of evolution be a better place to live in than ever. But it suffers from disarticulations resulting from the World War, and the interference with functioning is painful. Convalescence is even now established, and, though there are occasional symptoms of recrudescence, the ultimate prognosis is excellent.

One of the more troublesome symptoms of an as yet incomplete recovery is the still rising tidal wave of occultism and mysticism, the "psychic wave" of the lay press that appears to be approaching its apogee and will soon recede from the ken of the multitude—a wave that has caused and will leave behind it many intellectual wrecks.

History abounds with examples of similar waves, one of which without intended irreverence may be here recited. Eight hundred years B. C. the prophet Joel, who was apparently a psychiatrist of no mean ability, predicted "your sons and your daughters shall prophesy, your old men shall dream dreams, your young men shall see visions" (Joel II, 28). Eight centuries later, in 33 A. D., when at Pentecost the apostles were gathered together, "There appeared upon them cloven tongues like as of fire, and it sat on each of them," and "they began to speak with other tongues as the Spirit gave them utterance." Out of the babel of voices, many of the multitude which gathered to witness the strange spectacle recognized each his own language, "and they were all amazed and were in doubt, saying one to another, What meaneth this?" There were skeptics present even as unto the present time and the retort courteous was not lacking, for it is written: "Others mocking said, These men are full of new wine." There was also present some one to supply a metaphysical interpretation, for "Peter standing up among them" said, "These men are not drunken as ye suppose, seeing it is but the third hour of the day. . . . But this is that which was spoken by the prophet Joel," and he repeated the prophecy (Acts II). On the record of this gathering the so-called Pentecostal faith, Apostolic faith, Tongues of Fire, and various modifications have been founded. Any one attending a large meeting of these cultists cannot fail to observe among the devotees manifestations of hysteria, manic-depressive insanity, and other mental disorders.

For several years, mankind has been subjected to stresses unparalleled in the annals of history. The emotions and passions have been played on by mighty destructive forces set free by the Madman of Europe. Hatred, anger, fear, cupidity, jealousy, grief, love, courage, devotion, heroism, consecutively or alternately have been roused beyond the limits of the previously imaginable. Millions have died leaving more millions to mourn their loss. To many, support of poignant distress comes through faith in a Supreme Being and belief in a future life. Others, unable to endure the loss of loved ones and the delay in meeting them in the hereafter, seek communication with the departed and have evolved or found means which to them seem sufficient. Metaphysics, occultism, mysticism, telepathy, clairvoyance, mind reading, crystal gazing, fortune telling and miracle healing flourish. The ouija board, after a third of a century relegation to the attic, has returned to the living room, a monument to the longing and grief, credulity and stupidity of mankind. Scientists, pseudoscientists, amateur investigators, paranoiacs, charlatans, and quacks of every kind are busy, each in his own way trying to solve the mystery of a future life and of spirit communication or to take advantage, for mercenary or other reasons, of those who are honestly engaged in the sisyphean task. Multitudes have unmoored their barks and venture to ride the psychic wave. Some will escape harm, while others less fortunate or less capable will be grievously injured by their experiences.

The preceding is apropos of the fact that in every psychopathic clinic, in every court through which the insane pass, in every private office wherein they are served, are many commitments directly traceable to the practice in one form or another of black art. No one of experience will contend that spiritualism and clairvoyance cause insanity; but that they excite latent tendencies thereto and break down the frail barriers that exist in many minds between soundness and unsoundness is as plain as the results of the inevitable problem in multiplication.

No one can compute the total number of those who have succumbed, but that it is considerable will not be denied. Relatives of patients frequently are cognizant of the apparent cause of the mental collapse, and tell the examiners that the first noticeable symptoms of psychosis began with a visit to some spiritualist or to a theater in which some prestidigitator, telepathist and crystal gazer held forth. Alexander the magician boasts in his introductory lecture that his income is several times that of the President of the United States. He might with justice add that he leaves

* Read before the Canadian Medical Association, Vancouver, B. C., June 24, 1920.

behind him a host of victims for whom the state must care. He is an economic and social menace whom society with profit might suppress.

THE MENTALLY DEFECTIVE

In every community of size there are many who tread the narrow and devious borderland that exists between sanity and insanity. Roughly, three in every thousand of the population in the United States are confined in some institution, public or private, for the insane. In 1910, at the time of the last census, in New York State the number was one in 321; in Oregon at the same time, one in 354. In some other states the number was considerably less, though it is probable that this was, and, since similar conditions remain, is, the result of a lower standard; which means that in certain communities demented and feebleminded persons are tolerated at large who in more advanced communities would not be so tolerated. There are many communities in which an alienist could recruit the personnel of an asylum of goodly size without exhausting the possibilities or stretching present scientific or socio-economic standards.

For every person confined in an institution for the insane, one or more candidates are at large ready to discard inhibitions and yield to impulses that will sway them into the realm of recognized insanity. To these may be added a still greater number of persons who, though not definitely destined to mental breakdown, are yet possessed of constitutions which lack strength and endurance, who get on well enough as long as they are protected from stress and strain and are not taken out of the ordinary routine of life. The operations of draft and advisory boards revealed large numbers of mentally defective youths, often in unexpected places. Some were screened out, but many passed through the sieve, to break with the first unusual experience in camp. Some, less susceptible, got overseas, to break under the greater strains of the battlefield. The prototypes of all these are with us always, protected in one sense or another by society, kept within bounds that mark the limits of safety. They are potential victims of insanity which may assume almost any form.

But adolescence does not furnish all the recruits for the psychopathic hospital. Every age furnishes its quota, with an increase at the climacteric and another marking senescence. Modifications of phenomena are materially influenced by age and the curious stresses of social and economic life which vary so greatly with the time of life.

REFUGE IN THE OCCULT

Among the symptoms of incipient insanity are discomforts, paresthesias, unexplainable phenomena within and without the body, the results of physiologic or pathologic commotions too often not definitely understood even by physicians. The conception of the nervous system as a complicated electrical apparatus may give some clue to the origin of such somesthetic disturbances. Faulty innervations and insulations may cause nerve currents to go astray and register on centers for which they are not intended, creating disorderly results. Victims try to analyze these sensations and, failing to determine their origin in physiologic activities, seek explanation in environment, and finding none, look for it in some mysterious force or agency, the more mysterious the better. Every decade adds some new force on which to draw. Religion and religious persecution, spirits, secret societies, spies, electricity, detectives, dictaphones from time to time rule the stage and occupy the spotlight. Quite normal sounds, sights, odors and tastes are misinterpreted and ascribed to mysterious origins. Voices from unknown sources torture or less often pleasantly assail listening ears. Poisonous substances get into the food or air to work upon the respiratory passages. Smiles of friends or strangers become malevolent grimaces, and on every side normal conduct is misinterpreted and misconstrued. The interpretation placed on these phenomena varies with the age, environment, social status and education of the afflicted individual. So far as occultism is concerned, oddly enough, young men and women seldom attempt to explain mental disturbances as due to spirits, or appeal to spiritualists for help in their afflictions. Many, however, have sought the ouija board with disastrous results.

Older persons suffer from stresses incident to economic and social problems. They are fortified in part by the fact that they are in the prime of life and passing through the period when they are best able to withstand shocks and disasters, the constitutionally and mentally inferior having been weeded out by the processes of time. They bear their burdens better than such burdens are borne at any other age, but, conversely, their burdens are often heavier than at any other age. With the midforties comes the climacteric in women and a few years later a process closely resembling it occurs in men. At this time, when physical and mental strains are at their peak and resisting power is diminished by the beginning of involution, mental disorders are proportionately more frequent than at any other period, unless it be the period of adolescence. Peculiar characteristics often attach to such disorders at this time. One of the commonest has to do with misfortune to the children, who now are themselves passing through the strains of adolescence. Grief and disappointment are common emotional phenomena from which relief may be obtained by visitations to the church, to the physician or to the divorce court. Not least among the agencies which such distressed persons seek are the spiritualists and clairvoyants in the hope that some message may come from the dead or those who have strayed away. As a consequence mild, vague, depressive delusions and hallucinations, through appeals to the mysterious, become firmly fixed, paresthesias are accredited to supernatural forces, and the patient is on the way to a psychopathic hospital.

Now comes the beginning of physically degenerative changes. The "lean and slippered pantaloon" is oft the habiliment of a body surmounted by the arteriosclerotic brain and the atrophic cortex. Memory is confused, the power of attention and the ability to register impressions gradually lessen. Percepts assume the characteristics of the fadeaway in a cinematograph, slight speech difficulties develop, associative processes are blunted, momentary attacks of disorientation and aphasia manifest themselves. Griefs that in younger life would have been successfully withstood become unbearable. Stored up memories are projected into consciousness. The fluttering of an ear drum and the development of tinnitus assume the characteristics of spirit voices. Auditory and other hallucinations and illusions, which may have been present but controlled for many years, now gain control as the changes of senile dementia slowly and insidiously develop. When

these processes affect obscure, unimportant persons, and develop characteristically, they are well understood and excite no special comment. But when they are atypical, when perhaps only a few symptoms develop, such is not the case. Coincidently the brain may seem to function well in other matters, causing a false valuation to be placed on the aberrent phenomena. A great scientist, a great writer may be the victim. Needless to state, such a one is not satisfied to accept unquestioned the phenomena which, arising from his subliminal consciousness are not explainable through previous experience or teaching. He investigates, but being no longer able to register impressions with the receptivity of youth, is easily deceived and becomes a willing prey for charlatans. Conviction follows experiences that could not have deceived him in younger life, and a spiritualist emerges from the beginning intellectual wreck.

If he possesses ability as a teacher and leader, he is certain of a following. Other persons, senile or presenile or whose minds are troubled and who cannot explain the curious phenomena that beset them, accept the teachings of such presumably intellectual instructors. Every generation has its quota of false prophets who have hosts of panacea-seeking followers. The number of leaders and victims is multiplied by crises in the history of the world or the nation. The present furnishes more than any past age for the reason that the present is more full of grief-stricken people than any other time in the world's history has been, more doubt and anxiety exist in regard to the future life than in any past age, there are more complexities and confusions even in orderly lives and, most important, there are more means of spreading information, false as well as true, than the world has previously witnessed.

Spiritualism appeals to the middle aged and aged more than any other form of occultism. Its practitioners supply the pabulum which sick minds most desire. Wishes are fulfilled, longings gratified, hopes encouraged; and those who lack the fortitude to endure distress without assistance find in it promises as alluring as are the promises of the pot of gold at the end of the rainbow to the confirmed investor in oil wells and mining stocks. Their satisfaction is similar to that of the child who finds surcease from the pains of physical discipline in the saccharin properties of an all-day sucker.

The ouija board interests and presents a special appeal to people of every age. It is inexpensive, it requires no such elaborate settings as surround the spiritualists, and it lends itself to the will and desires of the individual. It may be induced to give messages responsive to the imaginings or yearning of its victims. It supplies in a way the wish fulfilment of the Freudians. It is not a new device. In the eighties it was commonly in evidence, but its use was discouraged, more especially by the Roman Catholic Church, and it gradually disappeared except from a few households. As this is being written,[1] the department stores are unable to supply the demand for it, and newspaper accounts of ouijamania daily appear. Whole families are reported to have been adjudged insane from its use, though it is doubtful whether such patients are really more than hysterical. It appeals to the weak, easily led and mentally subnormal. Sound minds cannot use it, unsound ones should not be permitted to do so. Its victims are numerous, but most of them will recover after a brief sojourn in an institution for the mentally disordered.

Of the lesser manifestations of the psychically troubled world, none shine more resplendently than the miracle healers who believe that God has given them special healing powers and that they are able to heal as Christ healed by the laying on of hands. It is curious that their pretensions have been supported by clergymen of influence, who appear not to realize that they themselves possess healing powers and that such healing is not uncommon in every consulting room of priest or physician, with the great difference that neither priest nor physician acribes to occult forces results which are due to well understood mental processes. The moment "cures" are ascribed to mysterious agencies, they may be classed with the cures of the witch doctor. It is small matter that the latter achieves his results mainly through fear. In either case the results are products of incantations, and present day miracle healing is but a twentieth century adaptation of healing methods that have for centuries flourished among savage and barbaric races. The person who believes that such processes cure disease will subscribe under proper circumstances to the belief in the reverse processes that disease can be caused by evil spirits. There are two classes of these healers—the sincere healer and the faker. The former are mainly rudimentary or undeveloped paranoiacs who, if not destroyed by intercurrent disease, will eventually become prophets or Messiahs. Not infrequently victims of paranoid dementia praecox develop such beliefs, but they endure for only a short time, as the disease is more rapid than is the course of the paranoiac or paranoid cases. Every student of psychopathology can recall a number of persons, many of whom founded religious cults and passed through similar processes often lasting many years, to succumb as dements.

Nothing here said is designed to detract from belief in a future life. Such belief is solacing, has noble and inspiring possibilities, and there is no proof that it is not based on truth.

> Still seems it strange that thou shouldst live forever.
> Is it less strange that thou shouldst live at all?
> *This* is a miracle and *that* no more.

No sane person denies the benefits of healthy religious inspiration, nor that courage, cheerfulness, willingness to see the bright side of life are helpful, and the reverse harmful. He is quite as much in error who denies the existence of the unpleasant and painful as is he who manfactures disorder through his imagination. Recourse to the supernatural works both ways from the truth, and is practiced by both types of mind. No one has proved that he has communicated with those who have gone before. Conversely, the vast preponderance of evidence indicates that fraud or psychosis is responsible for such evidence of communication as we have.

> I can call spirits from the vasty deep;
> Why, so can I: or so can any man.
> But will they come when you do call for them?

HOW WE CAN HELP

It would be useless to discuss occultism and its baneful influences without appending some constructive thought. To quote again, "Men and brethren, what shall we do?" How can we help? Primarily by recognizing not only the dangers but the self limitations of occultism, realizing that mind or consciousness is essen-

1. March, 1920.

tially sound and that the tendency toward health is quite as much a part of nature's scheme of mind as of body. Indeed, that mind, whether it be a product of brain activity or uses the brain as an organ on which to play, is harmonious or otherwise according to the perfection of its instrument. Mayhap there are even psychic opsonins and leukocytes to fight and win the victory. Whatever the weapons, it is certain that the wave will recede as all similar waves have receded. It will destroy few who are naturally sound in mind, and those whom it engulfs are almost certain to be predisposed to some form of psychopathy. Those who hear spirit voices are victims either of fraud or of auditory hallucinations, which is but a step toward insanity. Some who suffer from hallucinations control them and remain at liberty unsuspected often for many years. Others have to be cared for to prevent them from doing harm to themselves or to the community in which they live. The latter are insane in the lay sense of the term. But there is no more difference between the two types than there is betwen the victims of tuberculosis who have but few bacilli and those who suffer from galloping phthisis. The former, neglected, soon become the latter.

The manifestations of those who pursue or who are pursued by miracle healers are less serious. Many sound persons, lacking knowledge, receive ministrations from such persons and derive benefit from the religious uplift; but, in the main, those who get the most are psychoneurotic. Miracle healers, indeed, send few to the asylums. From a medical standpoint their principal danger lies in that those who believe that any individual is gifted with supernatural powers are not unlikely to neglect organic or infectious disorders until too late. Another result of the visitation of such healers is that they retard the development of rational religion and make more skeptics than can be offset by the benefits to the limited few who believe in their teachings.

There are many families, one or more members of which are psychoneurotic; and when such members exhibit symptoms, others in the family should be instructed to keep the disordered persons away from the mysterious. The physician's duty here is plain. He can educate, calling attention to the dangers that exist in the investigation of the occult, whatever be its nature. He should remember that those who are predisposed to psychoses can often be helped by kindly counsel, by the removal of exciting causes of disorder, by rest, by suitable medication, and by improved hygiene. A dose of calomel, a properly selected sedative, a vacation, a half hour's kindly conversation separately or in combination will do more than all the spiritualism, all the ouija boards, all the miracle healers in existence.

At the present time there is special need of sane thinking and sane instruction along these lines. The world needs all it can get of the rational. Ridicule of fanatics, no matter what form fanaticism takes, accomplishes little. Sarcasm and heedless wit are reactionary. Victims of spiritualism and the ouija board need none of these. Instead, they are entitled to sympathy and kindly counsel and understanding. The pathologies of the mind are quite as responsive to medical aid as are those of the body. And the reward of him who understands and properly uses his armamentarium against them is equally gratifying.

The wave is but one of the manifestations of troubled thought which is so prevalent in other directions. Let us do what we can to lessen the number of wrecks which it is destined to cause. Let us neither magnify nor minimize its dangers, but rationally do our share to minimize its results.

FREQUENT CAUSES AND THE TREATMENT OF PERENNIAL HAY-FEVER *

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During the last five years, while I was studying bronchial asthma, many patients who complained of having hay-fever throughout or at any time of the year presented themselves for study and treatment. All of the patients that are presented in this paper were either examined while under observation or had recently been examined by competent nose and throat specialists in order to exclude pathologic conditions, growths and the like that might be the cause of symptoms. On some of the patients, repeated nasal operations had been performed; with others, no cause for operation had been found, but much local treatment had been given. Therefore it may be stated that most if not all of these patients had symptoms that were not benefited by the usual treatment employed by rhinologists. As will be shown in this paper, the cause of the symptoms in such cases may often be determined by cutaneous skin tests, and relief may often be obtained by consentient treatment.

Although it has been well known for years that certain persons have hay-fever from exposure to animals, only recently has the real causative agent been recognized and appropriate treatment instituted. For these reasons it seems worth while to give a few protocols illustrative of these cases. Likewise, since the ingestion of foods and the presence of bacteria in the nasal cavities, exclusive of a definite infectious process, have only recently been recognized as a possible cause of perennial hay-fever, a few protocols illustrating these cases will be presented. The association of hay-fever symptoms throughout the year with true pollen or seasonal hay-fever and with olfactory irritants will be discussed. Finally, attention will be called to a group of cases in which there were eye symptoms alone as a result of eating certain foods.

With those patients who have perennial hay-fever due to animal emanations, foods and pollens it is usually the protein in these substances that causes the symptoms; in the case of the bacteria it may be the protein or it may be the infectious element. In testing with the animal emanations or epidermal proteins, the protein and the peptone should be used separately; with the cereal grains, the globulin fraction of the protein is most important; with other foods and with pollens and bacteria the whole protein seems to suffice. Before treatment may be given to those who are sensitive to a protein, cutaneous skin tests should be made with different dilutions of the offending protein, and treatment should be started with the strongest solution that fails to give even the slightest degree of reaction.

Described briefly, the cutaneous skin test consists of inoculating a series of small cuts or scratches on the flexor surface of the forearm with the different proteins to be tested. A positive reaction consists of a

* From the medical clinic of the Peter Bent Brigham Hospital.

definite wheal, with or without an area of erythema, and the protein giving such a reaction is usually the cause of the symptoms and should always be considered as the cause until proved otherwise.

PERENNIAL HAY-FEVER CAUSED BY HORSES

I have successfully treated twenty patients who had hay-fever caused by emanations from horses. Many of the patients knew that exposure to horses caused their symptoms, and they desired to be treated so that they could be around them. Others were not aware of the cause of their symptoms until the cutaneous tests were made. Protocols of ten cases will be given in more or less detail. Protocols of the other ten cases will not be given because they closely resemble those being presented, and they furnish nothing of additional interest. Two of the cases not presented are worthy of mention in that the patients were officers during the recent war, and as such they were required to use horses, which caused them to have violent hay-fever. After several inoculations, however, with the offending protein these patients were able to be around horses ad libitum without any symptoms.

CASE 1.—L. K. B., a man, aged 31, had had hay-fever caused by horses all his life. The attacks lasted three or four days at a time, and they occurred throughout the year. He was a cashier in a country bank, and whenever, as very frequently it happened in the winter, a person who had been driving a horse shook or brushed his fur coat in the presence of the patient, an attack of sneezing, itching of the eyes and running of the eyes and nose was precipitated by the horsehair and dandruff dislodged by the shaking of the fur coat. The patient also sneezed every morning on arising.

Cutaneous tests were negative with the proteins of the common foods, pollens and feathers, but were positive with the hair of the cat, dog and horse. The patient was most sensitive to the protein of horsehair and dandruff; a dilution of 1:100,000 gave a positive reaction.

The patient was treated once a week with a 1:1,000,000 solution of horse epidermal protein in gradual increasing amounts; the first dose was 0.1 c.c., and this was increased 0.05 c.c. each succeeding week until 0.8 c.c. was given at one time. During this series of treatments the patient became free from his customary morning sneezing, and the shaking of fur coats laden with horsehair and dandruff no longer caused symptoms; he was still, however, unable to ride behind a horse without having his usual symptoms. Treatment was continued with a stronger solution of the protein of horsehair and dandruff, namely, 1:100,000, in the same dosage as outlined above, and before treatment with this solution was completed the patient was able to ride behind horses without symptoms.

CASE 2.—C. M., a woman, aged 18, for the last four years had been subject to attacks of sneezing, itching of the eyes and running of the eyes and nose and difficulty in breathing through the nose when near horses; these attacks would continue for two or three hours following exposure. She had frequently been awakened by such attacks in the summer time when a horse had passed by the open window of her sleeping room. During one summer which was spent on an island where there were no animals she was free from symptoms, but on returning to the city in the fall she had an attack which lasted two weeks. She was subject to frequent head colds.

Cutaneous tests were negative with the protein of the common foods, pollens and animal emanations, with the exception that the protein of horsehair and dandruff was positive in a dilution of 1:1,000.

The patient was given a series of five treatments at weekly intervals with horsehair dandruff protein in a dilution of 1:10,000, beginning with 0.2 c.c. and increasing the dose 0.1 c.c. each succeeding week. Following these treatments she was able to ride horseback without symptoms and had very little trouble when riding behind a horse. The patient was then given a series of twelve treatments with the horse epidermal protein in a 1:1,000 dilution; the first dose was 0.1 c.c., the maximum or last dose was 0.8 c.c., and the increase each time was 0.05 c.c. The larger number of doses in this series was made necessary because several times the patient had a very sore arm following some of the increased amounts, thus necessitating a repetition of the preceding dose before an increase was deemed advisable. During this series of treatments the patient was able to ride behind horses without any symptoms at all, and she had been free from her usual frequent head colds during the last winter. Treatment was then given with a 1:100 dilution of the horse epidermal protein for eight weeks according to the same schedule as outlined above for the 1:1,000 dilution. By this time the cutaneous tests were negative with the 1:100 solution, and the concentrated powder of the hair and dandruff protein gave only a very doubtful reaction, which consisted of a small area of erythema but no wheal. After this the patient was lost sight of for more than two years, when a letter was received from her stating that she was still free from symptoms and was able to be about horses as much as she desired.

CASE 3.—W. G. T., a man, aged 29, had had hay-fever symptoms since childhood when he was near horses and when he went into a horse stable; exposure to cold air also provoked hay-fever symptoms. In addition, he had had continuous hay-fever from the latter part of August to October during the last summer, but never previously.

Cutaneous tests were positive with the protein of ragweed and goldenrod pollens and with the proteins of horsehair and dandruff in a dilution of 1:1,000.

Treatment was given with a series of inoculations of the 1:10,000 dilution of the epidermal horse protein and then with a series of the 1:1,000 dilution as already indicated in Case 2. The patient no longer had symptoms from exposure to horses, nor did exposure to cold air provoke symptoms. The following spring he was successfully inoculated against ragweed pollen hay-fever.

CASE 4.—M. W. J., a woman, aged 23, had had hives and sneezing and running of the eyes and nose since infancy when near horses. The hay-fever symptoms occurred at all times of the year and were also caused by dust.

Cutaneous tests were negative with the proteins of foods, pollens, cathair and feathers. Doghair protein gave a positive reaction in a dilution of 1:100, and both proteins of horsehair and dandruff were positive in a dilution of 1:100,000.

The patient was given six treatments at weekly intervals with a 1:1,000,000 dilution of horse epidermal protein; the first dose was 0.2 c.c., and this was gradually increased each week until the sixth dose was 0.6 c.c. Following this series of treatments, the patient experienced much less trouble when around horses. Treatment was continued for nine weeks with a 1:100,000 dilution of the protein, and then for nine weeks with a 1:10,000 dilution of the protein; with each dilution the first dose was 0.2 c.c., and each succeeding week the amount was increased 0.05 c.c. By this time the patient had no symptoms whatsoever from horses, and even dust no longer caused symptoms. Seven months have now elapsed since the last series of inoculations, and the patient is still free from symptoms.

CASE 5.—C. S., a girl, aged 10, had had hay-fever when near horses for eight years. She now desired to own and take care of a pony.

Cutaneous tests were positive with the pollens of timothy grass and ragweed, and with both horse epidermal proteins in a dilution of 1:10,000.

Treatment was given with a 1:100,000 dilution of horsehair and dandruff protein six times at weekly intervals; the doses given were 0.1, 0.2, 0.3, 0.5, 0.7 and 0.9 c.c. She was then given 0.2, 0.3 and 0.4 c.c. of a 1:10,000 dilution. Following this treatment she was able to ride behind horses with no sneezing or running of the eyes and nose, although her eyes would itch and get red. Two more treatments were given with this dilution; then a 1:1,000 dilution of the proteins was given for seven weeks, and finally five treatments with a 1:100 solution were given. By this time cutaneous tests

were negative with the epidermal peptone and only slightly positive with the epidermal protein. Treatment was then begun with the pollens. All of this treatment was given during the winter of 1917. It has now been three years since treatment was discontinued, and the patient has had no symptoms, although she has owned and taken all the care of a pony and has been around horses freely.

CASE 6.—P. H., a girl, aged 8, had had sneezing, running of the eyes and nose and itching of the eyes for several years when riding behind horses. She had had asthmatic attacks since infancy. She had to ride behind a horse to and from school.

Cutaneous tests were positive, along with other proteins, with horse epidermal proteins in a 1:10,000 dilution.

Treatment was given with a 1:100,000 dilution of both horse epidermal proteins until she was able to ride behind horses; altogether, ten treatments were given. After this, horse epidermal protein treatment was discontinued because, since she was now able to ride behind horses to and from school, it was considered best to treat the asthmatic condition, which was due to other proteins.

CASE 7.—H. B., a man, aged 40, declared that he was so sensitive to horses that he would have hay-fever, followed in a few minutes by asthma, whenever he went on a congested street where there were horses, or whenever he even went into a harness-repairing shop.

Cutaneous tests were positive with the horsehair and dandruff proteins; the peptone was positive in a 1:10,000 dilution, and the protein was positive in a 1:1,000,000 dilution.

Treatment was given nine times with a 1:10,000,000 dilution of the horsehair and dandruff protein at weekly intervals in these doses: 0.1, 0.15, 0.2, 0.25, 0.3, 0.4, 0.5, 0.6 and 0.7 c.c. The patient was now able to go into a harness-repair shop and to go near horses without symptoms. A similar series of treatments was then given with a 1:1,000,000 dilution of the protein, following which circumstances caused an interruption of treatment.

CASE 8.—E. G., a girl, aged 13, had had sneezing and running of the eyes and nose and itching of the eyes for the last year when riding behind horses and when on horseback. She desired treatment that she might ride horseback. She also had hay-fever in August and September.

Cutaneous tests were positive with ragweed pollen and with the horse epidermal proteins in a dilution of 1:1,000.

Treatment was begun with 0.2 c.c. of a 1:10,000 dilution of both horse epidermal proteins. Three days later the patient rode horseback with others in an enclosed ring which was very dusty, with no nasal or eye symptoms. Treatment has continued with equal success.

CASE 9.—M. G., a woman, aged, 21, had had hay-fever for ten years; she had a cold in the head all the time; her eyes and nose ran and she sneezed all through the year, and these symptoms were worse when she was riding behind a horse.

Cutaneous tests were positive only with the proteins of horsehair and dandruff, and with these in a 1:100 dilution.

She was treated nine times with a 1:1,000 dilution of the proteins and five times with a 1:100 dilution. Following this treatment she had no symptoms when riding behind horses, and in general she had much less trouble; still, she was not free from symptoms when not near horses. An examination of her nose revealed polypi, hypertrophied middle turbinates, and a very large spur on the septum. Removal of the polypi and spur relieved her symptoms of hay-fever entirely. Therefore, although treatment with the epidermal proteins relieved the hay-fever, which was caused by horsehair and dandruff, it was necessary to remove the polypi and the spur before complete relief was obtained.

CASE 10.—J. C. W., a woman, aged 44, had had hay-fever throughout the year for many years; her symptoms consisted of sneezing and running of the nose and at times stuffing up of the nose for two or three days at a time on an average of once a week.

Cutaneous tests were positive with the proteins of horsehair and dandruff in a 1:10,000 dilution, but were negative with food, pollen and other animal hair proteins.

Treatment was given as outlined in previous cases with a 1:100,000 dilution of the horse epidermal proteins, and then a few treatments were given with a 1:10,000 dilution, until the patient became free from symptoms. The patient then discontinued treatment for several months until slight symptoms returned; then more treatment was taken for a short time, and again freedom from symptoms resulted. After this the patient went three months without treatment, when slight symptoms again returned, and more treatment was taken, with the usual relief.

The horse protein hay-fever protocols illustrate several points which may well be emphasized. In Cases 1, 2, 5 and 6 the treatment is given in detail in order to show that treatment should be begun with the strongest solution of the protein that fails to give any reaction by the cutaneous test. Each week the amount of the inoculation is slowly and gradually increased until 0.8 c.c. is given as the last or maximum dose before the next stronger solution is given. In Case 2, several doses had to be repeated because some of the amounts caused a sore arm, whereas all of the other patients took the usual schedule of dosage without ill effects. Case 5 illustrates the fact that, if sufficient treatment is given to render the cutaneous test negative with the concentrated powder of the protein, complete and permanent desensitization results, since three years have elapsed since the last treatment with no return of symptoms, even though the patient is constantly exposed to horses. Case 2 probably illustrates this point, since more than two years have elapsed with equally good results. Case 3 shows that only a very few treatments are required to enable a horse-sensitive patient to ride horseback, and Case 6 shows that a few more additional treatments are required to permit the patient to ride behind a horse. Cases 3 and 4 show that it does not require many treatments to protect a patient from ordinary exposure to horses. Case 10 shows that although a few treatments will protect a patient for a few months, such protection is not lasting, and more treatment is required after a time. In other words, these protocols show that the longer the course of treatments, the longer and the more complete is the protection, and that sufficient treatment will probably protect indefinitely.

Cases 1 and 7 illustrate the extreme sensitiveness of some persons to horsehair and dandruff proteins, as demonstrated both by their history and by their cutaneous tests. Sufficient horsehair and dandruff protein is carried in the air in congested parts of a city to cause symptoms in patients that are so extremely sensitive to these proteins. The treatment of such patients has to be started with a very dilute solution of the protein, and great care must be exercised in order to avoid an overdose. In spite of these facts, if the cutaneous tests are carefully made, no ill effects result from proper treatment, and satisfactory results are obtained.

PERENNIAL HAY-FEVER CAUSED BY CATS

Cats probably do not cause hay-fever so frequently as do horses, since I have observed only six cases. Four of these patients were willing to dispense with their cats, and after doing so were free from symptoms. Two patients, however, preferred treatment to dispensing with their pet; protocols of these two cases follow.

CASE 11.—W. D., a boy, aged 12, once every month had had attacks of sneezing and running of the nose and eyes, followed by wheezing, shortness of breath and cough since 18 months of age.

Cutaneous tests were positive with the epidermal proteins of the horse, dog and cat, but the patient was most sensitive to the proteins of cat hair; cat hair peptone gave a positive reaction in a 1:10,000 dilution.

Ten treatments were given at weekly intervals with cat hair peptone in a 1:100,000 dilution as follows: 0.1, 0.15, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8 and 0.9 c.c. Following this a similar series of treatments was given with a 1:10,000 dilution. The patient became free from symptoms during the first series of treatments, and he has remained free, although it has been a year since the last treatment was given, and a year and a half since the last attack.

CASE 12.—F. R. J., a woman, aged 23, had had hay-fever throughout the year for fifteen years, and for the last nine years she had known that cats caused her to sneeze, and made her eyes and nose run.

Cutaneous tests were positive with the cat hair protein. She was, however, more sensitive to the peptone. A 1:100,000 dilution gave a positive test.

Six weekly treatments were given with cat hair peptone in a dilution of 1:1,000,000. After this a 1:100,000 dilution was given as follows: 0.1, 0.15, 0.2, 0.25, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8 and 0.9 c.c. During this series of treatments the patient noted slight hay-fever symptoms when she petted a cat. A similar series of treatments was given with a 1:10,000 dilution of the peptone. During this series of treatments she noted that she could fondle cats without any symptoms, and that she had no symptoms when not near cats, as used to be the case. Cutaneous tests were now positive with a 1:1,000 dilution of the peptone, whereas previous to treatment a 1:100,000 dilution gave a positive test.

Naturally, it is easier to avoid cats than horses, and it is preferable to dispense with the offending cat than to take treatment. The protocols show, however, that if it is necessary to desensitize against cat hair, the treatment for cat hay-fever is no different from that for horse hay-fever, and that the results obtained are equally as satisfactory.

PERENNIAL HAY-FEVER CAUSED BY FEATHERS

In testing patients for sensitization to feathers, the protein and the peptone of both chicken and goose feathers should be used. The patient comes in contact with feathers chiefly through the use of feather pillows, which may contain either or both kinds of feathers. Only two protocols will be given: one illustrating feather pillows and the other illustrating a parrot as well as feather pillows as the cause of symptoms.

CASE 13.—S. G., a man, aged 30, had had hay-fever for the last two years, with only one or two days' freedom at any one time. His eyes itched and watered, his nose ran and he sneezed. He also had frequent head colds.

Cutaneous skin tests were positive with poth proteins of chicken feathers, but negative with all other proteins.

Since discontinuing the use of feather pillows for the last six months he has been free from symptoms.

CASE 14.—R. H., a boy, aged 17, had had sneezing, running of the eyes and nose, and frequent attacks of bronchitis for the last three years, and during the last six months he had had considerable asthma. His nose had been operated on several times without benefit.

Cutaneous tests were positive with the proteins of chicken feathers alone.

On discontinuing the use of feather pillows, his symptoms were greatly improved but not relieved. The patient then mentioned that there was a parrot at his home, and he asked whether this could not cause symptoms. The parrot was then disposed of, and since then he has been entirely free from symptoms.

Although feather pillows and parrots may not frequently be the cause of hay-fever symptoms, it is desirable to test with feather proteins and to inquire in regard to the presence of feathered animals at the patient's home. There is no question that feather dust penetrates the coverings of pillows, and for this reason patients who are sensitive to feathers should use a floss pillow.

PERENNIAL HAY-FEVER CAUSED BY OTHER ANIMALS

Although I have not had cases of hay-fever caused by dogs or by the wearing of furs, such instances probably do occur. Hay-fever among laboratory workers who are around rabbits and guinea-pigs is not rare. I have tested four laboratory workers who had hay-fever; two were sensitive to rabbit hair and two to guinea-pig hair. All four patients were previously exposed to these animals the greater part of each day; but, since avoiding these animals, they have been free from symptoms. For the last two years these patients have had to handle these animals only occasionally, and only when handling the animals do they have symptoms. Inquiry should always be made as to whether there are any pet animals in the patient's home.

PERENNIAL HAY-FEVER CAUSED BY FOODS

It is not uncommon for bakers to have hay-fever symptoms from the inhalation of the cereal grain flours, and it is not rare among housewives. Therefore the cereal grains should always be tested. Foods that are eaten sometimes cause hay-fever symptoms, but such instances are not so common as are those caused by the inhalation of the proteins. Protocols illustrating interesting cases of hay-fever caused by the inhalation and ingestion of food proteins follow.

CASE 15.—M. T., a woman, aged 40, had had nasal trouble all of her life; her symptoms consisted of stoppage and plugging of the nose, thick secretion from the nose, running of the nose, and sneezing. For the last few months these symptoms had become so aggravated that they resembled a perpetual head cold, and consequently no one would employ her in a household.

Cutaneous tests were positive with chicken and goose feather protein and with oat and wheat globulin; all other proteins were negative.

Omission of feather pillows alone relieved her considerably, and omission of oat and wheat from her diet completely relieved her symptoms.

CASE 16.—G. C. P., a woman, aged 48, had had sneezing, running of the nose and some itching and watering of the eyes for the last year. During this time she had craved and had eaten raw carrots in quantities.

Cutaneous tests were positive with the protein of raw carrots, but they were negative with cooked carrots and with proteins of all other foods, as well as with those of animal emanations and pollens.

Since she has discontinued eating raw carrots, she has been free from symptoms.

CASE 17.—S. B., a woman, aged 55, had had hay-fever for the last four years; during the winter it was paroxysmal, but during the summer it was constant. After a positive cutaneous test had been obtained, the patient volunteered the information that during the summer she was a baker in a hotel, but during the winter her occupation was housework which required her to bake less frequently; therefore her hay-fever symptoms coincided with her baking.

Cutaneous tests were positive with wheat globulin only.

CASE 18.—G. P. W., a woman, aged 30, had swelling of the eyes, sneezing and running of the nose when she prepared or ate raw celery. She also had hay-fever caused by ragweed pollen.

Cutaneous tests were positive with the protein of celery and ragweed pollen.

CASE 19.—A. W., a woman, aged 52, had had sneezing, running of the nose and eyes, and dulness in her head for seventeen years until she recently learned that these symptoms

were caused by eating certain foods, namely, pork, onions, oatmeal and some forms of pastry. Sifting rye flour caused hay-fever, but she had no symptoms from eating it.

Cutaneous tests were positive with the following proteins and none others: barley, oat, wheat, onion, pork and cantaloup.

Since avoiding these foods she has been free from symptoms.

Case 20.—H. M., a woman, aged 37, had had hay-fever or a cold for six years whenever she mixed and baked bread. She had no trouble from eating pastry.

Cutaneous tests were positive with the cereal proteins, namely, rye, rice, barley, corn and wheat. All of the six individual proteins of wheat gave positive reactions.

Omission of cereals from her diet was not sufficient to permit her to bake without symptoms, nor did subcutaneous inoculation with the individual wheat proteins or with the protein of the whole wheat render her immune, although following this treatment she could bake a little with comparative diminution of her symptoms. However, relief was not sufficient to warrant further treatment, since it was not essential that she continue baking.

Case 21.—W. R. M., a man, aged 47, had had attacks of sneezing and running of the eyes and nose for many years whenever he was exposed to flour dust.

Cutaneous tests were positive with wheat globulin, but were negative with all other proteins.

Several of the cases in the foregoing protocols are worthy of special attention. Case 21 presented symptoms of vasomotor rhinitis for years, and not until cutaneous tests were made was the actual cause determined. In Case 19, symptoms were also due to the ingestion of commonly eaten foods; but the patient was aware of the cause, and cutaneous tests verified the cause. In Case 16 and 18 there were symptoms only after the eating of less common foods. In Case 17 the cutaneous tests determined the cause of symptoms. In Case 20 an attempt was made to desensitize the patient by subcutaneous inoculation so that she might inhale wheat flour without symptoms; this treatment was a failure. In all food sensitization cases it seems advisable to omit the offending protein, and usually this is not difficult to do. Case 21 illustrates a condition which is frequently present in bakers and is not rare among housewives.

PERENNIAL HAY-FEVER CAUSED BY POLLENS

It is not uncommon for seasonal pollen hay-fever patients to have paroxysms of hay-fever and frequent head colds of two or three days' duration throughout the year. The exciting causes of the attack out of pollen season are exposure to dust, sudden changes in the temperature, frosty air, drafts, irritating odors and the like. Following successful treatment for the seasonal pollen hay-fever, these patients usually remain free from symptoms during the ensuing year. It would seem that exposure and sensitization to the pollens had in some way rendered the patients' mucous membranes susceptible to or sensitive to the secondary or minor causes. Therefore pollens may be a cause of hay-fever outside the pollen season, and such patients may be relieved of perennial hay-fever by successful pollen treatment.

PERENNIAL HAY-FEVER CAUSED BY UNUSUAL PROTEINS

Goodale[1] has observed several cases of hay-fever caused by the inhalation of orris root face powder; these patients gave positive cutaneous tests with both the powder and the crude orris root. I have observed one patient who was sensitive to rice, and the use of face powder containing rice flour caused symptoms. The following protocol of a case that I studied illustrates the fact that perennial hay-fever may be due to the inhalation of any kind of organic substance.

Case 22.—T. G., a man, aged 34, a jewel polisher, had had sneezing, running of the nose, and a stuffy feeling in his head for five years. The symptoms occurred while he was at work, but he was free after leaving his work and whenever he took a vacation from his work. While at work the patient was exposed to considerable boxwood dust, which is very fine and floats in the air.

The patient gave positive cutaneous tests with the protein obtained from the boxwood dust in a dilution of 1:30,000.

After several inoculations with a 1:40,000 dilution of the boxwood protein the patient became free from symptoms while at work. Treatment was continued until the patient was taking a 1:1,000 dilution of the protein, and he continued to be free from symptoms.

PERENNIAL HAY-FEVER CAUSED BY BACTERIA

Twenty patients who had hay-fever symptoms throughout the year caused by bacteria have been studied. Bacteria were considered to be the cause of symptoms for these reasons: The patients were not sensitive to any of the usual proteins to which they were exposed, namely, those of the common foods, animal emanations and pollens. Either repeated examination of the nose and sinuses had revealed no abnormalities, or repeated operations had previously removed and corrected all abnormalities. Finally, many of these patients were either greatly benefited or relieved by autogenous vaccines made from the nasal secretion. This type of case differs from those already discussed in this paper in that none of the patients were sensitive to any protein, and eye symptoms were not present. As already noted, all of the previous groups of patients had, in addition to nasal symptoms, itching and running of the eyes, whereas this bacterial group had little or no eye trouble. Therefore the presence of pronounced eye symptoms indicates probable sensitization to some protein, and absence of eye symptoms indicates the improbability of sensitization to a protein as a cause. It would seem that this group of so-called bacterial cases should more properly be called vasomotor rhinitis rather than hay-fever, in that they differ as already noted from the sensitization cases.

Of the twenty bacterial cases that I studied, ten were treated by autogenous nasal vaccines with great benefit or relief; five patients who were similarly treated were not benefited at all, and the remaining five were not treated by vaccines but were treated locally by rhinologists without any benefit; the latter five cases serve as controls for those treated with vaccines. It is not my intention to infer that rhinologists, by means of local and operative treatment, fail to benefit or even cure similar cases, because it is well know that the rhinologist does not often fail in such cases. What I do, however, wish to infer is that after all other treatment has failed, autogenous vaccine treatment may result in considerable benefit or even relief; at least vaccine treatment is worthy of a trial as a last resort. Protocols of the ten cases in which treatment with autogenous vaccine gave benefit follow.

Case 23.—S. F. S., a woman, aged 27, had had attacks of "hay-fever" for five years. The attacks consisted of sneezing and running of the nose for fifteen minutes every morning on arising and every evening on retiring.

1. Goodale, J. L.: Boston M. & S. J. 175: 181 (Aug. 10) 1916.

Cutaneous tests were negative with proteins of foods, pollens and animal emanations.

Treatment was given at weekly intervals with an autogenous vaccine made from the patient's nasal secretion; the vaccine consisted of hemolytic streptococci. The first inoculation was 300 million, and each succeeding week the amount was increased 100 million.

The patient began to improve after the first treatment, and has continued to improve until she became free from symptoms following the seventh treatment.

CASE 24.—D. A. H., a woman, aged 18, had had "hay-fever" for several years; she had a head cold most of the time, she sneezed and her nose was irritated and ran.

Cutaneous tests were negative with all of the common proteins.

As in the former case, treatment was given with an autogenous nasal vaccine consisting of a hemolytic streptococcus.

She became free from symptoms and remained free for five months until the cold winter weather set in, when she began to sneeze considerably, although she had no irritation or running of the nose.

CASE 25.—F. W. H., a woman, aged 49, had had hay-fever all through the year for twenty years, but lately she had been worse during the summer. Her eyes itched, her nose ran, she sneezed and her ears itched; these symptoms continued for two or three days at a time with a few days' interval between the attacks.

Cutaneous tests with all the common proteins were negative.

After five treatments, as in the preceding cases, with an autogenous vaccine made from her nasal secretion, she became free from symptoms and remained free without treatment for eight months. The vaccine consisted of *Streptococcus viridans*. The patient then had a return of the former symptoms, but again she was relieved by similar treatment.

CASE 26.—W. D. R., a woman, aged 34, had had hay-fever throughout the year for three years; her eyes ached but did not water, her nose ran, and she sneezed every morning. Dust irritated her nose, and night air irritated so much that her sleep was disturbed.

Cutaneous tests were negative with all proteins.

She was given twelve treatments as in the preceding cases with an autogenous hemolytic streptococcus vaccine made from her nasal secretion. She became very much freer from symptoms, and her nights were entirely free.

CASE 27.—I. F., a boy, aged, 18, had had "hay-fever" for five years, winter and summer. Each attack might last one day or one week, and consisted of sneezing, running of the nose and eyes, and swelling of the eyes. He had frequent colds in his head and nose.

Cutaneous tests were negative with all proteins.

A culture from the nasal secretion inoculated in dextrose bouillon and on dextrose agar consisted of a pure growth of *Staphylococcus pyogenes-albus*. An autogenous vaccine made from this organism was given at weekly intervals for six weeks; the first dose was 500 million, and this was increased each week by 250 million. The patient became practically free from symptoms and had continued free for eight months when last heard from.

CASE 28.—M. F., a girl, aged 14, had had colds in her head like "hay-fever" all the year for as long as she could remember, with the exception that she was free for a period of three or four years following the removal of adenoids.

Cutaneous tests with proteins were negative.

Her nasal secretion planted on dextrose agar grew practically a pure culture of *Staphyloccocus pyogenes-albus*. At weekly intervals she was given twelve treatments with an autogenous vaccine of this organism in gradually increasing amounts; the first dose was 500 millions, and this was increased each week by 250 million. During this treatment the patient became free from symptoms and still was free when last heard from a year after treatment was discontinued.

CASE 29.—O. O., a man, aged 36, had had "hay-fever" for fifteen years; it developed gradually and occurred at all times of the year. The attacks consisted of sneezing, running of the nose, swelling of the nasal mucous membrane and swelling and itching of the eyes. The attacks continued for two or three hours. He also had frequent head colds.

Cutaneous tests were negative with proteins; intradermal tests were somewhat positive with *Staphylococcus pyogenes-albus*, but negative with other bacteria.

Following a series of eight treatments as in the previous case with a vaccine of *Staphylococcus pyogenes-albus*, the attacks became much less violent, and the sneezing and nasal secretion were greatly diminished. A year later the attacks became violent again and the patient requested more treatment. *Staphyloccoccus pyogenes-albus* vaccine was again given with equally good results.

CASE 30.—H. C., a woman, aged 21, had had almost continuous head colds for three years; her eyes smarted, she sneezed, and she had a water and sometimes bloody secretion from the nose. Cutaneous tests were negative with all proteins.

Treatment was given a few times with a stock vaccine consisting of *Staphylococcus pyogenes-aureus*, with no benefit. Twelve treatments were then given with an autogenous vaccine of a gram-negative bacillus isolated from the nasal secretion. During treatment with this organism the patient gradually became free from symptoms and remained free for a year after the vaccine was discontinued. She has not been heard from since.

CASE 31.—A. H. L., a woman, aged 38, had had "hay-fever" the year round for many years. She sneezed, her nose filled up, and it felt as if it were stuffed with cotton and then it ran mucus virtually every morning. For the last six years she had not had the sense of smell or taste, and her ears felt as if they were filled up.

Cutaneous tests were negative with all proteins.

An autogenous vaccine consisting of a hemolytic streptococcus was made from the thick secretion from the the nose and nasopharynx and sent to her physician, a nose and throat specialist, who carried out the treatment and later reported that the patient was greatly relieved of symptoms.

CASE 32.—W. C. H., a man, aged 32, had had a watery secretion from the nose and sneezing continuously for a year.

Cutaneous tests were negative with all proteins.

An autogenous vaccine consisting of a hemolytic streptococcus and *Staphylococcus pyogenes-aureus* was made from the patient's nasal secretion. This vaccine was administered by the patient's physician, a nose and throat specialist, who later reported that the patient became free from symptoms.

These cases illustrate the points already mentioned in connection with the bacterial cases. It is noted that in Cases 25 and 29 relapses occurred several months after treatment was stopped, but on resumption of previous treatment both patients again became free from symptoms. In Case 30 the patient was not benefited by a stock vaccine consisting of *Staphylococcus pyogenes-aureus*, but was relieved by an autogenous nasal vaccine consisting of a gram-negative bacillus.

OLFACTORY VASOMOTOR RHINITIS, OR PSEUDO-HAY-FEVER

Goodale [1] has called attention to the fact that during pollen seasons certain individuals who are sensitive to and have hay-fever from pollens also have vasomotor symptoms ranging from sneezing to asthmatic attacks due to the fragrance of certain heavily scented flowers that have no pollen or to which pollen the individual is not sensitive. He considers that the symptoms are reflex and that the path of transmission is along the olfactory nerve. The flowers most commonly responsible are lilies, hyacinths, sweet peas and peonies.

It is not infrequent to encounter certain individuals who have symptoms from similar causes at any time of the year. The causes of symptoms may be classified as mechanical, chemical, odorific and thermal. Among the mechanical causes any kind of dust is the most

frequent cause, more especially sweeping dust and hay dust; fine powder, such as talcum and the like, is also a frequent cause. Among the chemical irritants, soap powder, lye and ammoniacal fumes are very frequent causes. Among the odorific irritants, heavily scented perfumes, face powders, musty air and stable odors are frequent causes. Thermal irritants concern sudden changes of temperature, as in going from warm air to extreme cold, from moist air to very dry air, and exposure to drafts; a very frequent history is that of a paroxysm of sneezing with or without running of the nose on retiring and on arising. The mechanism seems to be a reflex due to the sudden exposure of the warm and protected skin of the body to cold air, as in getting out of bed and in undressing, during which acts the warm body surface is suddenly and momentarily exposed to cool air; in other words, there is a mild chilling of the body surface. The same mechanism holds for many who take cold easily. Some of these patients are sensitive to some type of protein which may have rendered their nasal mucous membranes sensitive to these irritants; others are not sensitive to proteins. Appropriate protein treatment for those who are sensitive usually relieves these symptoms, no matter what the irritant may be, and occasionally autogenous nasal vaccines will benefit or relieve the nonsensitive individual. Again it may be well to call attention to the fact that I am dealing with nasal conditions other than those due to abnormalities, growths and the like, which may cause similar symptoms. I am considering only those cases in which no abnormalities other than a possibly congested mucous membrane could be demonstrated or those whose apparent abnormalities had been corected.

CONJUNCTIVITIS DUE TO FOOD PROTEINS

Conlon[2] reports three cases of conjunctivitis unaccompained by any other manifestations that were caused by eating certain foods, and the patients gave positive cutaneous tests with the respective protein. One protocol follows.

> A. B. R., a man, aged 56, merchant, for the last four or five years had been unable to read for more than five minutes at a time without, as he expressed it, a feeling of sand in his eyes; the lids felt constantly as they do when one is very sleepy. He had rather frequent, sudden attacks of lacrimation, which came on without any known cause and stopped as suddenly as they started. He said that he had had a perfectly miserable time of it for the last couple of years, with virtually constant eye discomfort; so he became an "early to bed and late to rise" sort of fellow, as the only time he was at all comfortable was when his eyes were closed. His glasses had been changed a number of times, tinted lenses had been ordered and worn, and drops of various kinds and colors had been prescribed and used without any benefit whatsoever. The eyelids were slightly swollen and congested, and there was a general enlargement of the conjunctival blood vessels which was more marked on the bulbar conjunctiva. Nothing was found in the nose or throat. The general condition was good. He had no bad habits, did not smoke or drink, and no change was found necessary in his glasses.
>
> On a recent skin test with more than thirty proteins, this patient reacted to egg alone.
>
> The elimination of eggs from his diet was shortly followed by a total disappearance of his annoying symptoms. For the last two years he has been able to use his eyes as he wished, and he reports that life is once more worth living. One control test (eating egg) was followed by a return of his symptoms.

2. Conlon, F. A.: Am. J. Ophth. 2: 486 (July) 1919.

Conlon makes the following comments on this group of cases:

The skin test should be made at the time the patient is suffering from the conjunctivitis, as in some people the anaphylactic reaction disappears after the patient abstains from the offending food any length of time, to reappear again on eating it.

In the absence of uncorrected ametropia, all recurring low grade inflammation of the conjunctiva which the patient calls "frequent attacks of red eyes" should be considered as possibly due to food anaphylaxis. This is especially true when the attacks appear the same months year after year. After obtaining a positive skin test, the proof as to this food's being the cause of the conjunctivitis is readily obtained by the patient.

Conlon also believes that the study of food protein anaphylaxis and bacterial protein anaphylaxis will explain the etiology of a number of eye diseases, especially keratitis and low grade inflammations of the uveal tract, and will open up vast and fruitful fields for investigation.

CONCLUSIONS

Perennial hay-fever is frequently caused by animal emanations, and cutaneous tests should be made with the common animal epidermal proteins.

Those patients whose hay-fever is caused by exposure to horses may be successfully treated by repeated inoculation in gradually increasing amounts of the particular epidermal protein to which they are most sensitive.

Those patients who are sensitive to cat hair protein may be treated similarly with equal success. Dispensing with the cat, however, is easier of accomplishment and is usually beneficial.

With those who are sensitive to the epidermal proteins of other animals (pets), it is preferable to avoid that particular animal. Sensitization to feather protein from feather pillows is frequent, and the substitution of floss pillows is desirable.

Perennial hay-fever is frequently caused by the ingestion of foods and by the inhalation of the cereal grain flours. Cutaneous tests often reveal such a cause, and omission of the protein is the desirable mode of treatment.

Patients who have seasonal pollen hay-fever frequently have paroxysmal symptoms throughout the year. Satisfactory preseasonal treatment with the particular pollen that causes the seasonal hay-fever frequently relieves the perennial symptoms.

Recurring head colds are frequently coincident with the foregoing sensitizations, and relief from these head colds usually follows proper treatment, as already outlined. This type of head cold is probably not due to an infection but rather a result of sensitization which renders the nasal mucous membrane easily irritable.

Nonsensitive patients with perennial hay-fever or vasomotor rhinitis, provided there are no demonstrable abnormalities, growths and the like in the nasal cavities or sinuses, are sometimes benefited or relieved by autogenous vaccines made from the nasal secretion. The same statement also holds true for those patients who are subject to frequent head colds.

Olfactory vasomotor rhinitis, or pseudo-hay-fever, caused by mechanical, thermal, chemical and odorific irritants, is not uncommon and should be recognized.

The ingestion of foods may cause symptoms referable to the eyes alone. Therefore, although protein

sensitization should not be considered as a "cure all" or a cause of all obscure conditions, the cutaneous test for protein sensitization deserves a place among diagnostic tests; and when properly performed and interpreted, it is a very useful test.

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GLOMERULONEPHRITIS AS A COMPLICATION OF SUBACUTE STREPTOCOCCUS ENDOCARDITIS *

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This paper is designed to invite attention to the frequency of diffuse glomerulonephritis (acute glomerulonephritis and its sequel, chronic diffuse nephritis), as a complication of subacute bacterial endocarditis due to the anhemolytic streptococcus, the so-called *Streptococcus viridans*.

In previous publications [1] it was shown that microscopic study of the kidneys of individuals dying of subacute streptococcus endocarditis reveals, with few exceptions, a typical lesion in the glomeruli. This lesion, which was first described by Loehlein [2] and subsequently studied by one of us and proved to be due to minute bacterial emboli, can be differentiated histologically from the glomerular lesions of glomerulonephritis in accordance with criteria given in the papers mentioned.

In the course of a more recent microscopic study of the kidneys in seventy-seven cases of subacute streptococcus endocarditis, it was found that in nine cases these typical glomerular lesions were obscured by a diffuse, practically universal glomerulotubular damage. In six other cases of subacute bacterial endocarditis due to *B. influenzae*, no such complication was encountered. In all of the nine cases, death had occurred as a result of uremia, and on necropsy, the pathologic changes found in the kidneys could be classified into two types:

1. *Acute Glomerulonephritis.*—In two of the cases, the renal lesions were typical of an acute glomerulonephritis. The pathologic picture was identical with that seen after scarlet fever or streptococcus angina. Every glomerulus showed (1) swelling of the endothelium of the glomerular capillaries so that the loops were completely obstructed and bloodless; (2) disintegration of some of the loops, and (3) active proliferation of the epithelium of Bowman's capsule so that in many of the glomeruli the capsule was occupied by a crescent of swollen and proliferated cells. Both patients had died in the bacterial stage of their endocarditis, the anhemolytic streptococcus (*Streptococcus viridans*) being recovered from the blood in cultures during life and from the vegetations after death. In both instances, death had been preceded by such symptoms as vomiting, headache, hematuria and finally anuria and progressive stupor. Death in one of the cases occurred in uremic coma, in the other after general convulsions.

No bacterial emboli were demonstrable in the glomerular lesions.

2. *Chronic Diffuse Nephritis.*—In seven cases, the kidneys presented the gross appearance of the secondary contracted kidney and microscopically showed the typical picture of the end-stage of a chronic diffuse nephritis. Practically every glomerulus showed not only adhesions to Bowman's capsule, but also that peculiar hyaline thickening of the loops so characteristic of an antecedent acute glomerulonephritis.[3] The tubules were in varying stages of degeneration and atrophy and the interstitium showed an irregular but very marked diffuse increase in connective tissue.

In all seven cases, blood cultures during life were negative, and with one exception the massive vegetations were found to be free of bacteria and for the most part organized. In the one exception, a few clumps of streptococci were still present in one place, but otherwise the vegetations had become completely free of bacteria and almost totally organized. The endocardial lesions were typical of those described by Libman [4] as characteristic of the later, bacteria-free stage of the endocarditis.

The clinical picture of subacute bacterial endocarditis in these cases had become complicated or obscured by the onset of nephritic edema and other nephritic symptoms. In the absence of positive blood cultures, the diagnosis of the type of endocarditis was therefore rendered difficult or impossible except when characteristic symptoms, such as a mycotic aneurysm of a superficial artery, or other embolic features gave a clue to the essential underlying condition. Death in every instance but one occurred after the development of general anasarca and a typical wet uremia. One patient died in uremia without previously developing a general anasarca.

SUMMARY

Altogther, in this series of seventy-seven cases of subacute streptococcus endocarditis, nine patients, or about 11.5 per cent., died in uremia due to an intercurrent acute glomerulonephritis or its sequel, chronic diffuse nephritis. This is a remarkably large percentage; in fact, true glomerulonephritis apparently complicates subacute streptococcus endocarditis more frequently than any other disease, with the possible exception of scarlet fever.

The three diseases that are distinguished from all others by the frequency with which they are complicated by an acute hemorrhagic glomerulonephritis are scarlet fever, acute and chronic streptococcus angina, and subacute streptococcus endocarditis. The question therefore suggests itself as to the responsibility of the streptococcus for the frequency of this complication. Unfortunately, we feel that the streptococcus cannot as yet be impeached as the immediate cause of the glomerulonephritis in these cases, any more than the streptococcus of scarlet fever angina can be held responsible for the glomerulonephritis that frequently complicates that disease. This opinion is in part based on the fact that we have been unable to find streptococci in the glomeruli in the acute cases.

But the streptococcus apparently plays some rôle in the process, for the complicating acute glomerulonephritis has thus far occurred only in the bacterial stage of the endocarditis—when streptococci are still in the circulating blood. This is the stage, however,

* From the Pathological Laboratory of the Mount Sinai Hospital.
* Work done during the tenure of the George Blumenthal, Jr., fellowship in pathology.

1. Baehr, George: J. Exper. Med. 15: 330, 1912; Am. J. M. Sc. 144: 327, 1912.
2. Loehlein: Med. Klin. 6: 375, 1910.
3. Loehlein: Ueber die entzuendlichen Veraenderungen der Glomeruli der menschlichen Nieren und ihre Bedeutung fuer die Nephritis, Leipzig, 1907.
4. Libman: Am. J. M. Sc. 146: 625, 1913.

during which the embolic glomerular lesions are also being produced. One explanation that therefore suggests itself is that the fresh embolic lesions themselves render the glomeruli more susceptible to the engrafting of an intercurrent acute glomerulonephritis. This seems to us less likely than the previous hypothesis—that the streptococci are concerned in some more direct manner in the production of the diffuse glomerular damage.

If this acute glomerulonephritis, which is apparently initiated only during the bacterial stage of the endocarditis, fails to cause the patient's death, the renal process then progresses to the formation of a chronic diffuse nephritis. From this the patient may eventually die, even if his bacterial endocarditis runs a favorable course, becomes bacteria-free, and progresses toward healing.

987 Madison Avenue.

MINIMUM STANDARDS OF ORGANIZATION FOR MUNICIPAL HEALTH DEPARTMENTS *

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Preventive medicine is not an exact science. Epidemiology has yet to teach us many things with regard to the occurrence, prevalence and spread of many of our commonest diseases, to combat which we are compelled to use methods based on mere hypothesis. For instance, comparatively little is known of the epidemiology of those communicable diseases which are supposed to be spread through discharges from the mouth and nose, such as measles, scarlet fever, influenza, smallpox, chickenpox and mumps. Modern thought teaches us that they are personal contact diseases, i. e., diseases spread directly from person to person through ordinary every day social and business intercourse. If this is true, obviously it is a condition difficult or impossible to remedy.

On the other hand, epidemiology has taught us much relative to the control of those diseases spread through discharges from the intestine and those disseminated by insects. Here, again, as in the so-called diseases of the "respiratory type," the patient or carrier is primarily at fault, yet it is possible by proper attention to the environment to control them successfully. Malaria cannot spread in the absence of *Anopheles* mosquitoes. Typhoid fever can be controlled by proper disposal of human excreta, purification of water supplies, etc. In these diseases it is perfectly feasible for health authorities to erect artificial barriers which will reduce the dangers of personal contact to a negligible quantity.

With all preventable diseases, no matter what may be their cause, it is necessary for health officials to keep in personal touch with the people. The mere exercise of police powers will not control disease. The people need advice and education. The masses are at least one generation behind the modern health officer, so far as their knowledge of preventive medicine is concerned, and the health officer himself is even farther away from a complete knowledge of the subject. He therefore must be an investigator always striving after new truths.

The days of the part-time, unskilled health officer and the old-time sanitary inspector are numbered. It is now realized that health officials must be thoroughly familiar with their work both in theory and in practice. With increasing knowledge among the people, popular opinion is delegating more and more authority to the health department and increasing its duties manyfold. In order that these duties may be performed satisfactorily and that good results may accrue, the employment of full-time, trained men is imperative.

The purpose of a health department is conservation of health and prolongation of life. It may therefore be considered as a department of preventive medicine.

Its functions and duties are essentially the same in practically all cities regardless of their size. Differences in the amount of work to be performed are absolute and not relative, and this alone should determine the size of a health department. A small city may have an efficient health department, and yet its organization may be very simple. Complexity of organization increases with the size of the community, although the principles underlying public health work remain the same. As a city increases in size, details of administration make it necessary to depend more and more on subordinate officials; but every activity of the large health department should have its counterpart in the smaller organization, although in the latter, one official may be performing the duties which in a larger department would be distributed among many in several different divisions.

The preventable diseases may be classed as those due to: (1) animal and vegetable parasites; (2) conditions in the environment; (3) occupational influences: (4) faulty diet; (5) faulty habits, and (6) heredity.

One or many of these causes may act throughout or at different periods of man's life which, for purposes of the health officer, may be divided into seven periods: (1) the period previous to conception; (2) the intrauterine period; (3) the period of birth; (4) the preschool period; (5) the school period; (6) the productive and reproductive period, and (7) the period of old age.

These two classifications suggest the various functions and duties of a health department. The items in the group are intimately correlated, and no health department can be considered complete unless cognizance is taken of all. Whether or not there is an actual subdivision of the department according to duties performed, the work naturally falls under these eight headings: executive and administrative; vital statistics; communicable diseases; child hygiene; food inspection; sanitation; industrial hygiene, and last but not least, education.

The smallest health department which nevertheless contains all of the elements essential to public health work may be regarded as consisting of one physician with the qualifications of a health officer, one public health nurse and one clerk, all full-time employees. A larger department may be considered as a development from this nucleus resulting in a multiplication of personnel, specialization along certain lines, and logical distribution among bureaus calculated to cooperate with one another without unnecessary reduplication of effort or waste of time and money.

Thus, the full-time health officer who was performing the duties of epidemiologist, educator, dispensary

* Read before the Section on Preventive Medicine and Public Health at the Seventy-First Annual Session of the American Medical Association, New Orleans, April, 1920.

physician, bacteriologist and inspector in a very small community would be relieved of many duties by the addition of epidemiologists, bacteriologists, inspectors, and others, in the process of developing a larger department. With economic conditions as they are today, it is not possible to state positively the amount required to defray the expenses of a health department; but it is suggested that the appropriation necessary to maintain a minimum health organization varies from 50 cents to $1 per capita per annum. It is thought that in a city of 10,000 population, 75 cents per capita would be sufficient to maintain the minimum organization consisting of the nucleus mentioned above (Table 1).

TABLE 1.—EXPENSE OF MINIMUM ORGANIZATION

One health officer	$3,000
One public health nurse	1,200
One clerk	1,000
Salaries	$5,200
Maintenance	$2,300
Total	$7,500
All full time.	

Maintenance includes office and laboratory expenses, printing, expenses of an inexpensive automobile, etc. The health officer must perform the duties of bacteriologist, epidemiologist, school, milk and food inspector, etc.

In a city of 25,000 population, 75 cents would hardly cover the expense, as a city of that size should have a small isolation hospital (Table 2).

TABLE 2.—EXPENSES IN A CITY OF TWENTY-FIVE THOUSAND

One health officer	$3,500
One epidemiologist	2,500
Three public health nurses at $1,200	3,600
One milk inspector	1,500
One sanitary inspector	1,200
One statistical clerk	1,200
One stenographer	1,000
Salaries	$14,500
Maintenance	$4,250
Total	$18,750
All full time.	

In this organization the epidemiologist performs the duties of a bacteriologist, and he divides the duties of school inspector and dispensary physician with the health officer.

It will be noted that no provision is made for the collection of garbage and other city wastes, street cleaning, etc. These activities can well be omitted in considering a health department, as they quite properly belong to a separate department of the city government.

ABSTRACT OF DISCUSSION

DR. G. C. CHANDLER, Shreveport, La.: The protection of the public against preventable disease depends on the cooperation of the people, and the way to get that cooperation in a democratic country is to educate them simply on essentials. Do not harrass them by any unnecessary interference with their customary life. The sheet anchor of protection against diseases entering through the respiratory tract is ventilation. Educate the people to build sleeping porches, and to sleep in the open air, or with their windows wide open, winter and summer, and you will have solved to a great extent the question of prevention of diseases, such as smallpox, measles and similar diseases. Tell them about the accumulation of disease germs in closed rooms, and they will throw the windows open, thus reduce morbidity. If you want to protect the public from diarrhea or dysentery or typhoid fever, the best way to afford this protection is to see that the source of the water supply is the safest that can be obtained, and then use in addition to that the artificial method of destroying germs that get into the milk. That is the way to afford protection against diseases of the digestive tract which may enter through milk. You can give protection against diseases caused by inoculation, as by mosquitoes, by draining ponds, and where it is not possible to drain off the water, if it is stagnant, cover the surface with oil. And screen the houses!

DR. WALTER H. BROWN, Washington, D. C.: Dr. Fox has made probably the best study of municipal organizations in this country, and those of us who have watched the growth of this movement have had a great deal for which to be thankful to him. I do not think that there is any doubt as to what should be done. One of the large problems that is facing us is to get trained officials. In order to get the type of young men that we need it is necessary that they be given sufficient salaries, proper status, and a secure tenure of office. In Kentucky they are proposing to carry out a certain program, and they need men to do the work which they are proposing to do. When I left a municipal position not more than four weeks ago the state from which I came wanted four trained health officers, full-time men, with salaries ranging from $2,500 to $6,000 a year. If we look over the field in search of men, we are struck with the lack of available material. There is a great shortage of trained men. We can go into the public health schools all over the country, and we find hopelessly small groups of the type of men we need being fitted for this kind of work. If we are not careful, we will develop a one-sided program. We should have in mind that there is a great necessity to do something to attract to public health work people who are able and fitted to carry out the type of administration that Dr. Fox has so admirably presented to us.

DR. A. T. MCCORMACK, Louisville, Ky.: Every member of the profession who loves this work will be grateful to Dr. Fox for presenting in concrete form a definite minimum for the organization of a city health department. The responsibility is up to us, the medical profession to attract to this field, and then train, the personnel that is absolutely essential if we are going to accomplish anything in this work. The most serious matter that confronts those of us who are administering health departments is to secure that trained personnel that can do the work when we have the appropriation with which to carry on a definite program of work. Our difficulty does not consist in going before legislatures and budget commissions and the people themselves to convince them of the necessity for health work, but our difficulty is to secure trained personnel to carry on the work. The state board of health of Kentucky recently accepted an invitation from the University of Louisville to remove its organization and offices to Louisville, and attempt to develop a practical school of public health, where health nurses and health officers will receive training. We are not going to try to develop scientific teachers of public health, or to develop experts who will know one of the great lines of activity in which we are all interested, but we are going to develop the man who can do what Dr. Fox requires to be done, and what has to be done, for the people will become dissatisfied with less.

The faculty of our school will be composed practically entirely of health officials, people who have been actively confronted with the problems they are attempting to teach these young men and women how to solve. Half of the period of training will be devoted to laboratory work, in the human laboratory furnished by the men, women and children in the jurisdiction of the health department of the city of Louisville, the county of Jefferson, and adjacent territory where we are organizing health departments to carry on the work with these pupils under the supervision of trained field men. We have had forty-two students in our school during its first year. We expect to have twice that many at the opening of the school in the fall. No pupil will be admitted who is not approved for admission by the health department of the state from which he comes. No one will be admitted who is not a graduated physician. On the public health nursing side, no nurse will be admitted who is not a registered nurse

in the state from which she comes, and who is not approved by the health department of that state. Our object is to train actual health officers.

Dr. Carroll Fox, Washington, D. C.: My opinion is that all the health officers in the United States, by combining their efforts and concentrating them, can have little or no effect in the control of many of the diseases of the respiratory type. And my reason for saying that is because we know so little about their epidemiology. Influenza is a very good example. With that we can do absolutely nothing. Nobody knows what to do. There is only one way to control such diseases, and that is by rendering an individual immune. If it were possible to put off an epidemic of measles, we will say, what would result? We would merely be building up a nonimmune population, and when the epidemic did come the number attacked would be greater than ever. In other words, there is no artificial barrier which can be built up by man unless he is capable of rendering an individual immune to the disease, and we do not know how to do it, except in very few instances, like smallpox. Nobody knows how these diseases spread. We say that it is transference of nose and mouth secretions. Nobody has proved that. In fact, the attempt to prove it in the case of influenza was an absolute failure. Even with our knowledge of the cause of diphtheria and the use of the toxin-antitoxin treatment, we have had very little influence on the incidence of the disease. At the present time we can save more lives after people get sick, but as to preventing it, I think we have not been very successful. When one can erect an artificial barrier, as in the case of malaria, it is different. Destroy anopheles mosquitoes and you will have no more malaria. Drain a pond and you will get rid of the cause of malaria. If we were to develop and expand that proposition, if we could get enough money to do it, we should have no more malaria. That is positive. The school which Dr. McCormack of Kentucky speaks of is splendid. That is the best way to organize a school of public health. That is the way you are going to accomplish something. Everything is practical in connection with it, and it is absolutely necessary, in order to succeed, to have some practical experience. Theory does not go very far. It is practical experience that a man needs in this work, and then he will know his limitations; he will know what he can do and what he cannot do.

CERTAIN EPIDEMIC MICRO-ORGANISMS OF THE RESPIRATORY TRACT *

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In view of the fact that in respiratory epidemics the problem often arises as to whether or not many of our common organisms play a primary or a secondary rôle, this brief statement concerning certain epidemic strains of bacteria is made.

In the normal throat are several varieties of bacteria prone to become dangerous under certain conditions by either causing or complicating epidemic infections. These bacteria have been called opportunists. The most important are streptococci, pneumococci, Pfeiffer's bacilli (hemophils), staphylococci, meningococci, diphtheria and diphtheroids. Possibly the viruses, natural or modified, of measles, scarlet fever, anterior poliomyelitis and lethargic encephalitis might also be here included, but our knowledge of them in the normal respiratory passages is too meager and uncertain for discussion here.

In the streptococcus group are certain strains constantly found in the tonsils or throat, and ordinarily doing no harm there. At times, however, they take advantage of conditions in the host and invade the tissues, causing local or general infection (secondary infection). Ordinarily such infections are not contagious, even though they are highly virulent and fatal to the individual. The altered conditions making infection possible appear to be chiefly and primarily in the host.

At other times, streptococci may behave in another way. Not only do they occasionally become virulent for individuals, but the infection becomes highly contagious or epidemic. Whether the contagiousness is always necessarily dependent on the virulence is open to doubt. It may depend on some other property, such as the ability of the organism to implant itself on the respiratory mucosa, or on the manner of implantation. It has been shown that bacteria vary in their ability to gain a foothold on mucous membranes.

Examples of the appearance of such epidemic strains of hemolytic streptococci are given here. Many epidemics of sore throat caused by streptococci distributed through milk are now on record. These epidemics are very definite, and the cases are confined largely to those drinking milk. They spread little by contact or in ways other than through the contaminated milk. Therefore, the epidemics are local and restricted to very definite regions, and promptly subside when the contaminated milk is withdrawn. They are all caused by hemolyzing streptococci. The evidence in many epidemics indicates that the streptococci come from the udders of cows infected with strains virulent for the human being. In some of the epidemics the cocci may have entered the milk from a human carrier.

Now, studies made on these streptococci show that they have certain properties that differentiate them from other strains of hemolytic streptococci. They tend to arrange themselves in pairs even in the chain, are somewhat lanceolate, are encapsulated, grow moist and slimy on enriched mediums, form a clear and complete though narrow zone of hemolysis on blood agar, and may cause some green discoloration of the mediums. They are insoluble in bile and do not ferment inulin. For animals they are more virulent, on the whole, than most streptococci, but the lesions in general are the same. All the foregoing properties may vary somewhat, and when the strains are grown on artificial mediums for a time the properties become more like ordinary streptococci. Moreover, specific serum tests made by a number of observers on these strains show that from a given outbreak the organisms have common agglutinating properties by which they may be distinguished from other hemolytic streptococci. Here, then, are definite virulent and epidemic strains of streptococci distinguishable from other related strains and responsible for primary infections in normal persons. The term *Streptococcus epidemicus* has been applied to them by some workers.

Closely related to these milk epidemics are the streptococcus epidemics that appeared in military camps secondary to measles in the contagious wards of the camp hospitals. Here the streptococci appeared first as virulent secondary invaders in measles and quickly spread, involving a large percentage of those sick. Apparently so virulent and aggressive did these cocci ultimately become that they were able to attack normal persons, causing pneumonia, empyema, etc. Keegan [1]

* From the Department of Pathology and Bacteriology, University of Illinois College of Medicine.
* Read before the Section on Pathology and Physiology at the Seventy-First Annual Session of the American Medical Association, New Orleans, April, 1920.

1. Keegan, J. J.: A Hospital Epidemic of Streptococcic Sore Throat with Surgical Complications, J. A. M. A. 72: 1434 (May 17) 1919.

described an epidemic of streptococcus throat infections beginning in the throat ward at the Chelsea Hospital and spreading through several surgical wards, causing wound infections generally in the patients attacked. These streptococci had properties similar to the milk epidemic strains described above.

Streptococcus sore throat outbreaks, especially in the winter months, are fairly common, often attacking several members of a family or making rapid headway in an institution. Such outbreaks assume more or less epidemic proportions, and many become quite general in a community or a considerable section of country. They are not as clear cut as are the milk epidemics, and the cases are more scattered. Their epidemiology is not well known, but apparently the infection is spread by contact, being influenced, probably, by atmospheric or other undetermined factors. While it appears that streptococci are the primary cause of at least some of these outbreaks, it is probably true that in many of them this organism merely plays a secondary role, the infection being due to some unknown virus. More knowledge is greatly needed on the etiology of these common throat infections, and little or no study has been made with reference to special characteristics of individual or epidemic strains.

In pneumococcus infections, to some extent, at least, the same general rules seem to apply. Many of them are caused by a variety of strains which occur commonly in the mouth (Group IV). But at times certain strains (Type I, Type II, etc.) appear to acquire epidemic properties, and then the pneumococcus outbreak occurs on a more or less extensive scale. Other factors no doubt enter here to complicate the epidemiology. In epidemics of pneumonia, several strains or types of the pneumococcus are encountered even in the earlier stages of the outbreaks. We are led, therefore, to the assumption that environment and conditions surrounding the host are the important determining factors in the spread of the epidemic. Either this must be true or we must postulate that rapid changes occur in a given epidemic strain, resulting in the development of the several different types found in the epidemics. Possibly both assumptions are true in varying degrees at different times and under different conditions. Usually pneumococcus epidemics are less clearly defined than streptococcus milk epidemics, probably because of the difficulty pneumococci have in getting into lung tissue, their seat of predilection, as compared with infections of the throat by streptococci.

In this connection, studies of the epidemic of influenza are suggestive. Both in the 1889-1890 epidemic and in the 1918 epidemic, nearly every one who worked with the disease described the diplostreptococcus. There is little doubt that all were dealing with the same organism. This is what has been called the Mather's coccus and has been especially emphasized by Rosenow, Tunnicliff and many others. It was commonly found in the blood, sputum, lung exudates, pleural cavities, etc. According to most workers, this organism forms large, moist, watery, green colonies, is encapsulated, and even approaches the *Pneumococcus mucosus* type; they are very virulent for certain animals. Some of their properties, however, are variable; for example, inulin fermentation, bile solubility and specific agglutination. Though found widely both here and in Europe, still it would seem that in certain localities and especially where the epidemic was most fatal, these cocci appeared more commonly and seem to be responsible for many deaths. It may therefore be possible that these diplococci at certain times and places take on highly virulent properties in a way quite comparable to the strains of hemolyzing streptococci mentioned above. The fact that hemolytic streptococci so commonly complicate measles and scarlet fever and the diplostreptococci influenza, probably depends on the part of the respiratory tract primarily attacked—the throat by the measles and scarlet fever virus, the tracheobronchial apparatus by the influenza virus.

It would appear, then, that this coccus, which at present we might hesitate to call either a streptococcus or a pneumococcus, is an organism prone to cause serious infections in the respiratory tract. There is no clear evidence that it is ever a primary invader, but as with hemolytic streptococci, at times it may acquire aggressive properties enabling it to implant itself on a normal respiratory tract by contact or in some other way. As noted above, it has certain properties which, according to some workers, give to it quite definite distinguishing characteristics.

Hemophils (Pfeiffer's bacilli) have a distribution quite like the streptococci. They are widely found in normal and diseased throats, and at times are very virulent for man. The evidence indicates that they rarely, if ever, acquire epidemic properties. Perhaps the nearest approach to this is the occurrence of outbreaks of so-called influenza meningitis. In 1910, in Chicago, in a little more than a year, I encountered seven cases; since then, apparently, they have been rare, one case a year or thereabouts being reported. In New York, too, about that time, these cases were common, but have been far rarer since. Cohen [2] encountered it in Paris about the same time (1909) and called attention to the high virulence of the strain for rabbits. He noted a specific agglutination for these strains by immune rabbit serum, and therefore considered them in a group by themselves and distinct from the Pfeiffer organism. These outbreaks all occurred when ordinary influenza was not prevalent.

Observations by many observers indicate that while the bacilli of this group (hemophils) have many characteristics in common, still in their agglutination and other reactions they may vary decidedly. In my own work, several years ago,[3] I found that immune rabbit serum agglutinated the homologous strains to 1:800 or 1:1,000, whereas all other strains from the same disease or from other disease agglutinated 1:200 or thereabouts. At that time I was inclined to interpret the results on the basis that the homologous strain was agglutinated in higher dilutions than the heterologous strain, a phenomenon known in other well defined varieties of bacteria. However, the interpretation may be made that the individual strains vary and comprise a heterogeneous group, which is quite in accord with the results of Park and Williams [4] and of other observers working with strains of Pfeiffer's bacilli from the recent influenza epidemics. Small and Dickson [5] found that ten strains fell into four groups, and Fleming, Huntoon, Jordan and others, on the basis of specific and cultural reactions, have obtained evidence that the group is a heterogeneous one. I have else-

2. Cohen: Ann. de l'Inst. Pasteur **23**: 273, 1909.
3. Davis, D. J.: Bacteriology of the Respiratory Tract, J. A. M. A. **48**: 1563 (May 11) 1907.
4. Park, W. H.: Bacteriology of Recent Pandemic of Influenza and Complicating Infections, J. A. M. A. **72**: 318 (Aug. 2) 1919.
5. Small, J. C., and Dickson, G. K.: Grouping of Bacillus Influenzae by Specific Agglutination, J. Infect. Dis. **26**: 230 (March) 1920

where [6] discussed this question, calling especial attention to the several varieties of hemoglobinophilic bacteria. In all probability, as this group is further studied, it will be further differentiated in accordance with general principles of bacterial variation.

An analysis of the evidence thus far available from studies of the recent influenza epidemic does not indicate that a single epidemic strain of *B. influenzae* appeared in the influenza patients. This fact has been interpreted by Park and others to mean that this organism was not the etiologic agent, for the reason that it is difficult to think of an explosive epidemic like influenza as having been caused in a given locality by more than one strain of Pfeiffer's bacillus.

Staphylococci rarely, if ever, cause epidemics of any magnitude. Small localized outbreaks of furuncles, impetigo contagiosa, etc., may be mentioned, but there appears no clear evidence that staphylococci ever cause respiratory epidemics. As secondary invaders they may play a rôle, but in this regard they appear to be of decidedly less importance than the streptococci or pneumococci. Little or nothing has been done in identifying strains having individual or epidemic properties.

The meningococcus is found commonly in the normal throat, and is prone to cause epidemics either localized or widespread. The epidemics are quite definite and sharp, though not a large percentage of persons exposed are attacked. Organisms found in such outbreaks usually belong to two or more groups so far as their agglutinating properties are concerned. It is generally conceded that meningitis is a disease dependent in large measure on factors other than the mere presence of the organism in the respiratory tract. It would appear that the various strains or groups are normally fairly widely distributed, and under suitable conditions the several groups are enabled to invade their hosts and cause the disease. Another possibility is that one given strain may readily and rapidly alter its characteristics in passing from person to person, so that even in a given outbreak members of different groups may appear.

Diphtheria bacilli are present in throats of a certain percentage of normal persons. They cause sporadic cases and under certain conditions and especially during certain seasons may give rise to serious outbreaks or epidemics. Recent work [7] tends to show that there are at least two groups of diphtheria bacilli differing in their agglutinating properties. They differ also, but to a less degree, in the character of the toxin produced, a point of importance, if verified, in the production of the specific serum. The relation of the groups to each other is not known; and whether or not outbreaks of diphtheria may be due to a specific strain or to several strains belonging to different groups still remains to be worked out.

Other organisms found at times in the respiratory tract are *B. fusiformis*, which may be responsible for very definite outbreaks; but little or nothing is known concerning the characteristics of the epidemic strains. The terrible outbreaks of plague pneumonia are clear-cut epidemics spread by direct contact and, so far as available data indicate, are due to a strain of *B. pestis* of high virulence. Various strains of plague bacilli even from remote regions show little or no difference in their agglutination reactions. They may vary markedly, however, in their virulence for animals.

From an analysis of epidemics and outbreaks caused by bacteria, such as I have considered above, it appears that there is found no example comparable in extent and in epidemiology to the influenza epidemic. This might be interpreted as an argument against the view that this epidemic was caused by strains of any of the ordinary bacteria of the respiratory tract.

A number of points arise here for discussion, one being the value of specific serum tests for identification; in particular, agglutination tests in revealing relationships of strains of bacteria. Considerable data [8] now exist pointing to the ease with which agglutination and other properties may be made to vary under experimental conditions. It is quite reasonable to assume that under the more complex conditions of natural infection, specific properties of bacteria vary even more rapidly than under experimental conditions. Differences in the agglutination titer as manifested by different strains may mean simply that the organisms have been perhaps transferred a number of times or grown in different mediums. The assumption would appear reasonable that in a sharp, sudden epidemic, differences between individual strains of organisms responsible for the epidemic would be slight or nil; whereas, in more diffuse and less explosive outbreaks, wider differences in the organisms, especially in their finer and more delicate properties, might be expected to appear. Greater differences would be anticipated in organisms obtained from widely separated localities. This may be a partial explanation of the higher incidence of typhoid fever in our soldiers when in France than when in this country.

The relation between capsule development and virulence is a question of interest here also. No doubt a strict parallelism between these characters does not exist, for many bacteria have an abundant capsular substance and are entirely without virulence. However, there is evidence that capsular material may vary in composition; the profuse mucinous envelop about some saprophytes my be a very different substance and have a different function from the capsule seen about certain pathogens like the pneumococcus. At any rate, in the streptopneumococcus group, and apparently in other groups, the more virulent and aggressive the organism the more apparent is the capsule; and, vice versa, after cultivation on artificial mediums the capsule tends to disappear. This was especially noticeable with the milk epidemic strains of hemolytic streptococci.

In concluding this brief statement of a subject which deserves a far more detailed analysis, I will emphasize the fact that just as there are opportunists about the body ready to invade the individual, so there are opportunists at times able not only to invade the individual but also to originate an epidemic. We have, then, individual opportunists and epidemic opportunists, the latter differing from the former not so much in virulence, perhaps, as in their aggressive power and ability to gain a foothold under adverse conditions on the mucous membranes or in the tissues of the body. Some of the distinguishing characteristics of the latter are a moist, slimy, watery growth, formation of a capsule or a capsule-like substance, and specific agglutination reactions.

6. Davis, D. J.: Infections with Hemoglobinophilic Bacteria, J. A. M. A. 64:1814 (May 29) 1915.
7. Havens, L. C.: J. Infect. Dis. 26:388 (May) 1920.
8. Dawson, A. I.: J. Bacteriol. 4:133 (March) 1919. Rosenow: J. Infect. Dis. 14:1, 1914. Jordan: Ibid. 26:427 (May) 1920.

ACUTE CARDIAC UPSETS, OCCURRING DURING OR FOLLOWING SURGICAL OPERATIONS

THEIR MECHANISM AND MANAGEMENT *

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"Acute dilatation of the heart" has long been a medical wastebasket for circulatory upsets occurring suddenly both in patients known to have had heart disease and in those who previously have not suffered from cardiac disorders. Particularly has this term been applied by surgeons and clinicians to patients who manifested sudden or alarming circulatory failure or collapse during or following operations. The exact nature of many of these upsets has remained obscure, and in fact reliable evidence of actual dilatation of the heart has been wanting. Perhaps this is partly due to the fact that under the circumstances these patients are in a precarious condition, not permitting of roentgen-ray examination or other troublesome study. Frequently they may still be under an anesthetic when the upset occurs, or only just recovering from a serious surgical operation; or perhaps the postoperative care may prevent them from being moved from one part of a hospital to another, which makes it impossible to collect the necessary data to determine exactly the disturbances that are taking place. In a word, just as "death from acute indigestion" has been used in cases in which death was probably due to sudden coronary obstruction or thrombosis or angina pectoris, so acute dilatation of the heart has been applied to conditions that are more clearly understood and recognized only when careful observations are made.

An opportunity presented itself during the last few years to observe nine surgical cases in which there had been some sort of circulatory upset or collapse during or following operations. Surgical shock is not considered in this study. The conditions were diagnosed by the surgeons as acute dilatation of the heart in some cases, and might very well have been similarly diagnosed in others had not the real nature of the disorder been discovered. Attention in this study was particularly paid to the mechanism of the heart beat, and in each instance this was found to be abnormal. Of the nine patients three had paroxysms of auricular tachycardia, four suddenly went into auricular fibrillation, and the other two had paroxysmal auricular flutter. These conditions are well recognized and described in the more recent works on cardiac disorders. The striking fact is that every patient had a high grade of auricular disturbance, and in all but two the condition was transient in nature, the normal rhythm subsequently being resumed. It was possible to obtain graphic proof of the abnormal mechanism by taking electrocardiograms of six of the patients, and the clinical course of the other three left no doubt as to the real nature of the disturbance.

In estimating whether the heart increased in size during these attacks, the only reliable evidence would have been orthodiagrams, for it is quite clearly recognized that percussion and palpation are much disputed methods of determining small differences in the size of the heart. Unfortunately roentgenograms of the heart were not obtained in these cases, because the interest of the patient demanded that the attack be stopped if possible (as was done in three cases), and some of the others were too sick to be moved. However, roentgenographic studies of similar paroxysmal rapid heart action were made of other cases in the medical wards during and after attacks, which failed except in very isolated instances to show any marked change in the transverse diameter of the heart. The latter medical patients in whom roentgen-ray studies were obtained were suffering from cardiac disease, and one would have expected to find evidence of dilatation in them during attacks of tachycardia even more pronounced than in surgical patients suffering from no cardiac symptoms.

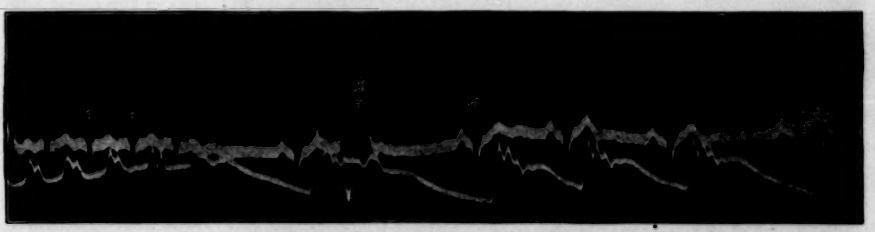

Fig. 1 (Case 1).—Upper tracing, electrocardiograms, lower tracing, brachiogram. The first five regular and rapid beats show the end of the attack of auricular tachycardia. The transition was produced by right vagal pressure. The normal rhythm is restored after a long pause. An extraventricular beat (*Ex*) interrupts the rhythm in one place.

It is to be noted that there were three types of disturbances: auricular tachycardia, auricular flutter, and auricular fibrillation. A proper differential diagnosis of the three conditions is important, because on it will depend an intelligent and efficient management of the attack. As an illustration, one of the patients went into serious collapse while under ether anesthesia, and it seemed for some minutes that her life was in danger. The heart suddenly jumped to 216, and the breathing stopped. Artificial respiration was given, and fortunately the type of upset was paroxysmal auricular tachycardia, which generally can be arrested by vagal stimulation, either by direct pressure over the carotid arteries, or by ocular pressure. In this instance, pressing rather vigorously on the left

* Read before the American Society for Clinical Investigation, Atlantic City, N. J., May 3, 1920.

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carotid artery caused a sudden cessation of the attack; the pulse dropped to 104, and the normal pink color replaced the former cyanosis. In the other two types of disorder, this quick and dramatic result is impossible and cannot be hoped for. We are then dependent on proper digitalis therapy, as the cases cited below will illustrate.

These upsets may occur at any time during the administration of anesthesia: before the actual operation has begun, during the operation, or while the patient is still unconscious, but after the operation is completed. All three of the cases of auricular tachycardia occurred while the patient was still unconscious. The other six patients had their upsets following operation at varying times, from twenty-four hours to nine days after operation. The attacks lasted from several minutes to several days in seven cases, and in two the abnormal rhythm remained permanent as long as our observations were made. At times the clinical condition of the patient became alarming during the attack, while others were not much disturbed. What effect on the circulation would have resulted if the conditions were left untreated it is difficult to say. Very likely some of the attacks would have ended in the normal course of events, because similar paroxysms come and go in nonsurgical patients without great disturbances. Nevertheless, it is almost needless to emphasize that prompt attention should be given when the patient is already embarrassed by a surgical condition.

From the study of these nine patients it is impossible to predict what type of case is likely to have a cardiac upset during or following operation. In none did syphilis seem to be an etiologic factor. Ether was used as an anesthetic in seven of the cases, and procain as a local anesthetic in the other two. One of the ether patients, on whom the operation was delayed because of an attack of auricular tachycardia, was subsequently operated on under gas and oxygen without any mishap. Eight were given a preoperative hypodermic injection of morphin sulphate, 0.01 to 0.02 gm., and seven in addition received 0.5 mg. of atropin sulphate. No definite history of similar previous attacks of rapid heart action could be obtained in any of them, although two had complained of palpitation and three had been bothered by slight dyspnea on exertion. In two cases there was a past history of rheumatic fever. Clinical examination of the heart revealed that one patient had outspoken signs of mitral stenosis and five others had slight cardiac hypertrophy without disease of the valves. Eight of the patients were over 45 years of age, and the other was a boy of 17 who gave no evidence of any organic disease whatever except a fractured clavicle, for which an operation was performed. He had never had heart attacks before, but continued to have them even after leaving the hospital. In a word, there does not seem to be any constant etiologic factor. In what way the surgical procedure can be blamed for precipitating the attacks, or how they may be avoided, it is difficult to state. Very likely some of the patients would have had similar heart upsets at a more distant time, even if no operations were performed.

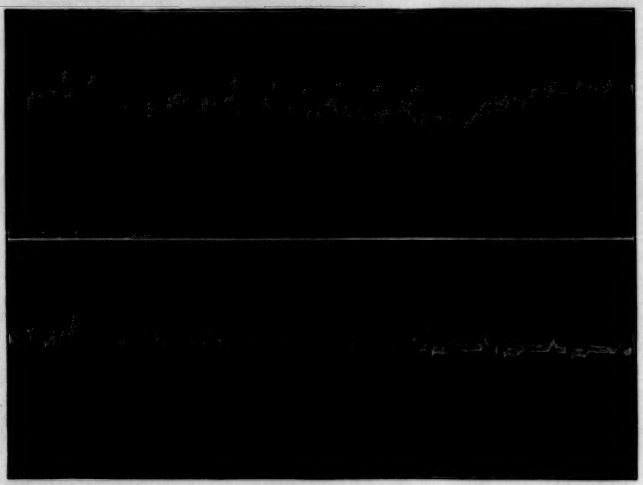

Fig. 2 (Case 6).—Upper tracing, taken January 23, with rate of 157, shows that auricular fibrillation had set in. Lower tracing, taken February 3 shows that the normal rhythm had been restored. Rate is 85. One premature auricular beat (*Ax*) is seen.

In the treatment of the attacks, the important step is to distinguish paroxysmal auricular tachycardia from the other two conditions. In the former, repeated attempts to stop the attack should be made, first by pressure over the left or right carotid artery, and if these fail, by ocular pressure. In the three cases of the sort in this series, the attacks were terminated by these means. The exact diagnosis of the abnormal mechanism may be difficult without special graphic methods. Confusions would be likely to arise between auricular flutter with a regular ventricular rate, as in Case 8, and auricular tachycardia. The absolute arrhythmia of auricular fibrillation practically rules out any other condition. It might be helpful to note at this point that vagal pressure never stops an attack of flutter, although the ventricular rate is slowed temporarily (Fig. 3). On the other hand, the rate of auricular tachycardia is rarely affected unless the attack is completely arrested. It follows, therefore, that if an abnormal regular rapid heart rate slows temporarily during vagal stimulation, the mechanism is not due to auricular tachycardia, but rather to flutter. In deciding whether a rapid regular rate is a normal acceleration or an abnormal tachycardia, it will be of considerable assistance to make an accurate determination of the apex rate, counting a full minute

and repeating this observation in five or ten minutes.[1] If it is an abnormal tachycardia, the rate may not vary even one beat, or at the most not more than two beats, while in normal acceleration greater variations are found. An abnormal regular rate in the vicinity of 200 cannot be any other condition than auricular tachycardia, for if it were flutter the auricular rate would have to be some multiple of 200 or at least 400 (since there is practically always some degree of auriculoventricular block with flutter), which is beyond the limits of this condition. Should the attack be one of auricular fibrillation or flutter, digitalis in some form is the one drug at our disposal. It may not be necessary to use it if the clinical condition of the patient is satisfactory, for the attacks may be transient. The amounts and rapidity of administration would depend on the emergency of the situation. Although none of these patients received large single doses of digitalis by the Eggleston method,[2] one would expect that such a procedure or intravenous use of strophanthin might find a proper place under these circumstances.

SUMMARY

A condition usually called acute dilatation of the heart has been observed in nine cases during or following surgical operations. Each patient was found to have an abnormal auricular mechanism; three had paroxysmal auricular tachycardia, four had paroxysmal auricular fibrillation, and two had paroxysmal auricular flutter. In all but two cases the condition was transient.

There is satisfactory roentgenographic evidence, by studying similar upsets in nonsurgical patients, that the heart does not generally dilate during these attacks.

It is urged that well-defined terms which actually describe the abnormal mechanism be employed when possible, rather than the vague name "acute dilatation of the heart."

Direct vagal pressure or ocular pressure proved successful in arresting all three of the cases of paroxysmal auricular tachycardia. Proper digitalis therapy controlled the course of the cases of paroxysmal auricular flutter and paroxysmal auricular fibrillation.

1. Very accurate counts of rapid regular apex rates can be made at least up to 250 per minute. Three medical men varied from 248 to 250 in a case proved by electrocardiograms to have a rate of 250. Tapping a table with a pencil synchronously with the heart sounds helps to count the very rapid rates.

2. Eggleston, Cary: Digitalis Dosage, Arch. Int. Med. 16:1 (July) 1915.

REPORT OF CASES

CASE 1 (S. 2140).—A student, aged 17, had a negative past history except for an occasional attack of tonsillitis. He had no symptoms or signs of structural heart disease. While still under ether during an operation for wiring a fractured clavicle, the heart rate suddenly jumped from 100 to 150.

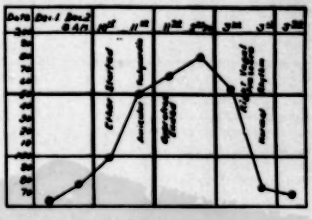

Fig. 4.—Apex rate, Case 1.

The patient seemed to be in fair condition, and so the operation was finished. The heart rate remained around 160 (Fig. 4), and while still under ether he was taken to the electrocardiograph room. Here tracings were obtained which proved that the condition was one of paroxysmal auricular tachycardia. Right vagal pressure was applied and the attack was ended. The normal rhythm was restored after the customary postparoxysmal pause. Figure 1 shows the transition from the tachycardia to the normal rhyhm. He had a normal surgical convalescence, but had frequent attacks of tachycardia thereafter, lasting from a few minutes to several hours. There was no past history of ever having had such attacks before the operation, and no evidence of heart disease could be discovered. He was but very little embarrassed during the attacks, and learned to stop them by holding a deep breath.

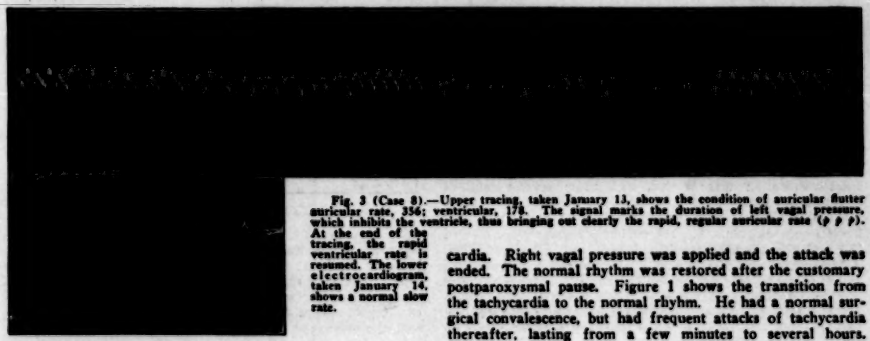

Fig. 3 (Case 8).—Upper tracing, taken January 13, shows the condition of auricular flutter auricular rate, 356; ventricular, 178. The signal marks the duration of left vagal pressure, which inhibits the ventricle, thus bringing out clearly the rapid, regular auricular rate (p p p). At the end of the tracing, the rapid ventricular rate is resumed. The lower electrocardiogram, taken January 14, shows a normal slow rate.

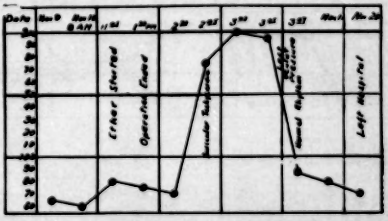

Fig. 5.—Apex rate, Case 2.

CASE 2 (S. 2028).—An engineer, aged 46, who had a history of gonococcal infection and some sort of chancre at the age of 16, came in to be operated on for recurring carcinoma of the glands of the neck. The Wassermann reaction of the

blood was negative. He had had slight dyspnea on exertion for one year, but no palpitation. The heart was slightly enlarged to percussion. The blood pressure was 135 systolic, and 85 diastolic; the urine showed an occasional cast. After the operation for dissection of the glands of the neck was over, but while the patient was still under the influence of ether, the heart rate suddenly rose from 70 to 170 (Fig. 5). The condition did not seem to be particularly alarming, and the patient was taken to the electrocardiograph room. Here the tracings showed that the upset was due to paroxysmal auricular tachycardia. Repeated attempts to stop the attack by pressure on the left and right vagus nerves failed. Left ocular pressure, however, promptly brought the attack to an end, and the rate suddenly fell from 195 to 88. The patient had no more attacks and made a satisfactory surgical recovery. He died three years later of carcinoma of the pharynx.

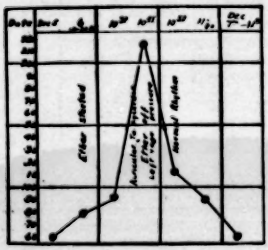

Fig. 6.—Apex rate, Case 3.

CASE 3 (S. 11598).—A housewife, aged 46, had rheumatic fever at the age of 8 and chorea for about two years, from 10 to 12. For the preceding two years she had noticed some dyspnea on climbing stairs, and occasionally had palpitation, but no definite history of attacks of tachycardia could be obtained. She recently had several attacks of gallstone colic. The diagnosis of gallstones was made, and the heart showed signs of well compensated mitral stenosis with slight cardiac hypertrophy. The patient was etherized, and while the abdomen was being prepared, but before the operation was started, breathing suddenly stopped, she became cyanotic, and the heart rate was found to be 216 and regular (Fig. 6). Artificial respiration was started, and after several minutes attempts were made to stop the auricular tachycardia by vagal pressure. There was no opportunity to confirm the diagnosis by electrocardiograms, but the perfectly regular apex rate of 216 and the ultimate result rule out any other condition. After several attempts at both right and left vagal pressure had been made, pressure on the left carotid suddenly restored the heart to the normal rhythm. The rate fell from 216 to 112 in one beat. The patient was subsequently operated on, with gas and oxygen as an anesthetic, and a gallbladder containing stones was removed. She had no subsequent attacks of tachycardia, and left the hospital in excellent condition.

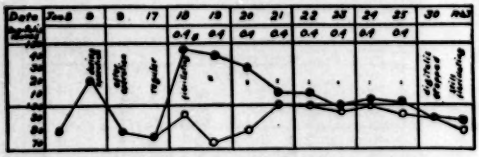

Fig. 7.—Apex and radial rates. Case 4. In this and the following three charts, the apex rate is indicated by the solid dots, and the radial rate by the hollow dots.

CASE 4 (S. 11788).—A man, aged 65, came into the hospital to be operated on for an inguinal hernia. He never had had chorea or rheumatic fever, but had two attacks of acute tonsillitis many years before. He had had occasional flutterings of his heart after smoking too much, but otherwise there had been no symptoms referable to the circulation. Six weeks before admission to the hospital, while lifting some heavy loads, he ruptured himself and came in because he did not want to wear a truss. Physical examination was negative except for somewhat distant heart sounds. He had a typical right inguinal hernia. The systolic blood pressure was 156 and the diastolic 82. The heart rate was about 80 before operation and rose as high as 120 during the operation. It always remained regular, however. Procain was used locally, and no general anesthetic was needed. The pulse remained around 80 for eight days. The ninth day following the operation, although the convalescence seemed to be progressing favorably, the heart suddenly became irregular; the apex rate was found to be 144 and the radial 92. The absolute arrhythmia and the pulse deficit pointed to the diagnosis of auricular fibrillation. No electrocardiograms were obtained. He was given 0.4 gm. of digitalis leaves daily, and the apex and radial counts gradually approached each other (Fig. 7). When the patient was discharged from the hospital the heart was still in auricular fibrillation, but the rate was not rapid and there was no decompensation. At no time was he disturbed symptomatically by the attack of rapid heart action.

CASE 5 (S. 11108).—A woman, aged 49, entered the hospital for repair of a postoperative ventral hernia. There had been no history of acute rheumatic fever or chorea. She had been slightly short of breath on exertion for the previous few years, and had occasional precordial pain radiating down the left arm. Her main difficulties were constipation, indigestion, and abdominal pain associated with the ventral hernia. Examination of the heart revealed slight enlargement; the heart sounds were regular but distant, and a soft systolic murmur could be heard all over the precordium. The patient stood the operation very well, and no particular difficulty occurred. Ether was used as the anesthetic. Two days later, however the heart suddenly became absolutely irregular and rapid. The apex rate was 145 and the radial, 100. The diagnosis of auricular fibrillation was made, although no electrocardiograms were taken. Clinically, she did not look very well, the respirations were 35 to the minute and her color was poor. She was given 0.5 gm. of digitalis leaves in one dose, and the following day the heart was slow and regular. The next day she had another attack of transient auricular fibrillation, the apex rate being 127 and the radial, 92. This attack did not upset her symptomatically so much as the first. It was thought that she might continue to have further attacks, and so she was given 0.4 gm. of digitalis daily for several days with the hope that if other attacks occurred the apex rate would not accelerate. Four days later (Fig. 8) a third attack was observed, although the patient was absolutely unaware of it. The rhythm became completely irregular, but the apex rate was only 85 and there was no pulse deficit. The heart was already prepared for the attack by the digitalis. The patient was finally discharged in good health with a regular, slow heart rate.

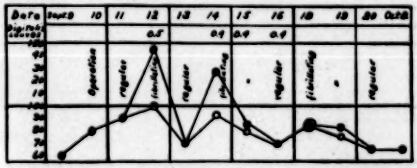

Fig. 8.—Apex and radial rates, Case 5.

CASE 6 (S. 11721).—A man, aged 58, came into the hospital for gradual failure of vision. He had a negative history so far as the circulation was concerned, and examination of the heart was essentially negative. The diagnosis of brain tumor was made, and a right subtemporal decompression was performed. Three weeks later a right parietal bone flap operation was performed. No tumor was found, but there was a right internal hydrocephalus. There was no particularly abnormal reaction of the pulse during either of the two

operations, and both were performed under ether. The third day after the second operation, the pulse became absolutely irregular in force and rhythm, the apex rate being over 150, and the radial about 80. Electrocardiograms disclosed auricular fibrillation (Fig. 2). The patient became delirious and developed Cheyne-Stokes breathing. He was given 0.4 gm. of digitalis leaves daily for six days. The pulse deficit entirely disappeared, and the apex rate fell from 155 to 90. On the seventh day the heart became regular and remained so. The patient later died of a brain tumor, found at necropsy.

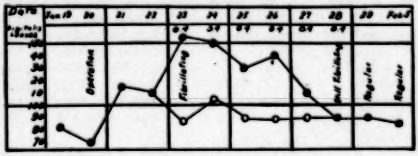

Fig. 9.—Apex and radial rates. Case 6.

CASE 7 (S. 2228).—A woman, aged 46, entered the hospital complaining of a choking sensation in her throat and palpitation of the heart. Physical examination revealed that she was suffering from hyperthyroidism with marked exophthalmos and tachycardia. The heart was somewhat enlarged, but the action was regular. An operation under ether was performed, at which the superior and middle cervical sympathetic ganglions on both sides were removed. The condition of the patient was excellent throughout the operation, the pulse ranging between 90 and 110. About forty-eight hours after the operation the heart rate, which had been regular and 110, suddenly jumped to over 200, while the pulse rate remained around 100 (Fig. 10). There was absolute irregularity in force and rhythm. Electrocardiograms revealed the condition to be auricular fibrillation. Digitalis was not given for three days to see whether the attack would prove to be transient. On the fourth day, when the apex rate was still in the vicinity of 200 with a marked pulse deficit, tincture of digitalis, 1 c.c. every four hours, was begun. In seventy-two hours there was virtually no pulse deficit, and the apex rate had fallen to 102. The patient remained under observation for one month, but the normal rhythm of the heart did not return. She died at home a few months later of hyperthyroidism, with symptoms of increasing cardiac failure.

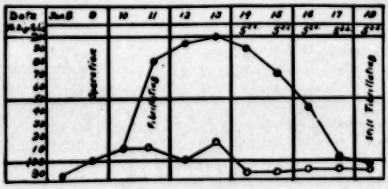

Fig. 10.—Apex and radial rates, Case 7.

CASE 8 (S. 2294).—A janitor, aged 55, complained of inability to swallow solid food. Both his mother and father had died of cancer of the stomach. His marital history was negative. Following acute rheumatic fever twenty years before, he had pneumonia and pericarditis. For some years, until six months before, he had frequent and distressing attacks of palpitation. For the last two years he had had increasing difficulty in swallowing food, and when seen he could take only liquids. The diagnosis of carcinoma of the esophagus was made and a gastrostomy was advised. Examination of the heart disclosed definite enlargement but no significant murmurs. The blood pressure was normal and the Wassermann reaction was negative. There was no particular difficulty with the surgical operation, performed under procain as a local anesthetic. The patient gained weight on artificial feeding through the gastrostomy, but on the sixth day after the operation the heart rate suddenly rose to 180. The rhythm was perfectly regular, and electrocardiograms revealed that the condition was auricular flutter, with an auricular rate of 356 and a ventricular rate of 178 (Fig. 3). This attack lasted about twenty-four hours, and then a normal slow rate of 88 returned. Pressure on the vagus nerves had no influence on the attack, for although the ventricular contractions could be readily inhibited, the auricles were unaffected; and as soon as the vagal pressure was released, the original rapid rate was resumed (Fig. 3). Nine days after the attack of paroxysmal flutter, the patient had an attack of transient auricular fibrillation lasting twenty-four hours. During this attack the apex rate was about 170, but absolutely irregular (Fig. 11). During neither paroxysm of rapid heart action did the clinical condition become alarming; and because it was thought that the attacks would be transient, no digitalis was given. He died a short while later, and at necropsy carcinoma of the esophagus, general peritonitis and an adherent pericardium were found.

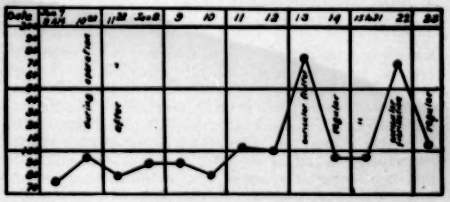

Fig. 11.—Apex rate, Case 8.

CASE 9 (S. 3679).—A housewife, aged 52, complained of sudden severe transitory pains in the right side of her face. The family and marital history was unimportant. She had never had any acute illness and never suffered from cardiac symptoms. Physical examination revealed a slightly enlarged heart, which was otherwise negative. The systolic blood pressure was 254, and the diastolic 150. The urine and blood examination was normal, and the Wassermann reaction was negative. The diagnosis of trigeminal neuralgia was made, and an operation for the avulsion of the sensory root of the fifth cranial nerve on the right side was performed under ether. Before operation the pulse was always between 50 and 60, and during the operation it was generally under 70. Thirty hours after operation the heart rate suddenly jumped to 140. The attack lasted about thirty-six hours, whereupon the rate promptly fell to 62. Two days later there was a similar attack, the heart rate rose to 150, and the patient seemed clinically to be in a poor condition. Electrocardiograms were taken and showed that the attack was one of auricular flutter, with an auricular rate of 304 and a ventricular rate of 152. During the next twenty-four hours she was given 0.5 gm. of digitalis leaves, and the rhythm changed from auricular flutter to auricular fibrillation, with an apex rate of 90 (Fig. 12). Digitalis was omitted, and the following day the heart was slow—60 to the minute and regular except for an occasional premature auricular beat. Thereafter the patient made an uneventful recovery and was discharged in good condition.

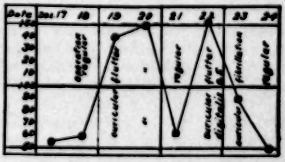

Fig. 12.—Apex rate, Case 9.

21 Bay State Road.

THE PRESENT STATUS OF NEUROTOLOGY FROM THE BORDERLINE STANDPOINT *

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In presenting this subject for consideration, I intend not to bring anything particularly new before this body so much as to present certain memoranda representing deliberate and disinterested judgment of investigations and discussions. I trust they may constitute more than a mere exchange of views and opinions, and be a statement of principles and a recapitulation of the chief features on which agreement has been reached. There should be thus afforded a summary review of those points of agreement of the various investigators, and the memoranda should remain as they were intended to be—the bases of future reference representing the combined opinion of these investigators.

The necessary development of specialism has produced such a wide separation of existing medical knowledge that there often remains little common ground for discussion. This is especially true and unfortunate in classes of cases necessitating the intimate cooperation of several specialists. There is probably no class which illustrates this condition more strikingly than the borderline cases with which neurotology is called on to deal. It is to be hoped that neurotology can succeed in establishing a closer cooperation and harmony in this class of cases, dealing especially with intracranial diagnosis, many of which become sooner or later neurosurgical in character.

Many of the chief complaints of the patient, such as impaired hearing, tinnitus, headache and vertigo, which lead him to consult the otologist, are not always indicative of primary ear lesions. These are often the presenting symptoms, and because of their annoying character they obscure other manifestations of existing nervous disease which are either ignored or not given proper evaluation by the patient. The otologist, therefore, is consulted instead of the neurologist, and because of this overlapping in their fields of work there should be a reciprocal relation between them. The otologist should know enough neurology to consult and ask assistance of the neurologist in complicated and puzzling internal ear cases, and the neurologist should be as ready to seek aid of the otologist in the diagnosis of intracranial lesions, for which the latter is especially trained. Neurologic and other special examinations in such borderline cases often disclose diagnostic and prognostic facts of great value. What has been said of neurology applies equally well in the fields of internal medicine, surgery, gynecology, syphilology and ophthalmology, in their borderline relation to otology. To gain a better appreciation of the present status of these neurotologic tests, a short historical summary of their evolution would be in order.

EVOLUTION OF NEUROTOLOGIC TESTS

In 1907, when Bárány published his book, "Physiologie und Pathologie des Bogengangapparats beim Menschen," he apparently had no idea of the relation between the vestibular apparatus and the cerebellum. In his plan of the mechanism involved in the production of nystagmus and disturbances of equilibrium, the cerebellum had no place. Following perusal of the works of Marburg and Bing, Bárány recalled the analogy between the staggering and spontaneous nystagmus in diseases of the cerebellum and those of the vestibular nerve. Later, Cajal's book "Histologie du système nerveux de l'homme et des vertébrés" (Edition française, 1911), impressed him with the fact that every root fiber of the vestibular nerve ends in the cortex of the cerebellum, and on the way to the cortex of the vermis gives off collaterals to the cerebellar hemispheres. Bolk's book, "Das Cerebellum der Säugetiere," 1906, convinced him that the cerebellar hemispheres control the innervation of the extremities of the same side.

The works of Nothnagel, Pineles and Mann next came to his attention. Nothnagel, as early as 1876, had declared that disturbance of equilibrium arose only in disease of the cerebellar vermis. Pineles and Mann emphasized the hemiparesis of the same side occurring in cerebellar affections. Bárány then recalled that ataxia of the arm of the same side was of regular occurrence in cerebellar abscesses and cerebellopontile angle tumors. Through Docent Sachs he was permitted to experiment with the Graefe touch test during vestibular stimulation. In this test the patient with an eye muscle palsy fixes an object and then with closed eyes attempts to touch it again. The patient "overshoots the mark" if paralysis is present. The thought came to Bárány: "How will a normal person react with an induced vestibular nystagmus?" Experimentation developed the fact that a normal person with horizontal nystagmus to the right past points to the left, and vice versa.

Another question now arose in the mind of Bárány: If in disease of the vermis spontaneous falling occurs, spontaneous past pointing should occur in disease of the cerebellar hemispheres; and if in disease of the vermis normal falling does not occur, so should the normal past pointing reaction fail to occur in disease of the cerebellum. Thus was developed the "pointing reaction" of Bárány, as well as the relation of the vestibular apparatus to the cerebellum.

It may be thus readily seen that when we examine the vestibular apparatus we test not only the ears but also a large part of the central nervous system. We can determine the functional intactness of the end-organ, the eighth nerve, the various afferent paths, and the intracranial structures through which they pass; the cerebral cortical centers and their transcortical association tracts; the efferent cerebral paths and the nuclei through which they pass; the cerebellar nuclei and correlation paths to and from cerebellar cortical centers, and various portions of the pons and medulla.

DIAGNOSTIC AIDS DERIVED FROM THESE TESTS

After such a consideration, the wide possibilities of neurotology become apparent, and the application of these newer vestibular apparatus tests gives results which are often of great value to other branches of medicine in determining diagnosis and proper treatment. Space and time forbid going into great detail, but I shall enumerate a few of the diagnostic aids to be derived from these newer ear tests.

* Read before the Section on Laryngology, Otology and Rhinology at the Seventy-First Annual Session of the American Medical Association, New Orleans, April, 1920.

To the fields of internal medicine and gynecology they have given us a method of recognizing vertigo which has been a stumbling block for years. Vertigo is essentially an ear study, and while these tests do not reveal everything connected with this symptom, they at least furnish a good working basis, thus enabling us in the majority of cases to make a diagnosis and institute intelligent treatment. When a patient complains of vertigo—and by that term I mean a sensation of motion which is contrary to fact—the physician should give the vestibular apparatus the first consideration, and analysis from this standpoint will usually lead to gratifying results in diagnosis.

To the neurologist great aid can often be given in differentiating between labyrinthine and intracranial lesions and assisting in intracranial localization. These ear tests are not supposed to make the diagnosis for the neurologist—though they occasionally do so—but they often afford data of great suggestive and confirmative value in arriving at a correct diagnosis.

To the surgeon they play the rôle of bringing order out of chaos in intracranial localization; they will often determine whether or not a given case is operable, and, if so, where operation should be done; and no skull should be opened until the patient has had a thorough examination of his ear mechanism supplementing other known methods of diagnostic value.

To the syphilologist they offer additional data in the early diagnosis of syphilis and in the determination of early involvement of the central nervous system; they assist in the recognition of neural recurrences, help in checking therapeutic activity and efficiency, and, in some cases, assist in determining whether or not the patient is cured. In selected cases they often go beyond the blood and spinal fluid examinations.

In the study of eye palsies they offer material assistance to the ophthalmologist, and are of great value in analysis of the cause of spontaneous nystagmus and in the determination of the degree of paresis or paralysis of the eye muscles and eye movements.

The otologist not only offers a wide range of usefulness to other branches of medicine with these tests, but he employs them as a routine in his own work in determining whether he shall or shall not operate on a labyrinth, and whether he is dealing with a labyrinth, eighth nerve, or intracranial lesion.

All innovations in medicine have been subject to the gauntlet of carping criticism, and the Bárány tests offer no exception; in fact, they seem to have received more than their share. Perhaps it was another case of "toying with the Delilah of the Press." These tests at the outbreak of the World War were given undue and unwarranted publicity owing to the popularity of aviation among the young men of the country. Certain critics rushed into print without having carefully analyzed the form used in examination of candidates for aviation, claiming that undue prominence was being accorded the ear tests. These discussions were soon quieted by the cold blanket of facts, but the prejudice which they aroused seems to linger still, and has given rise to an antagonistic attitude.

When the ears are stimulated, an extensive portion of the nervous system becomes involved, and this in turn affects a large part of the voluntary body musculature. Because of this a proper technic of examination and interpretation of responses becomes of the greatest importance. I shall take it for granted that a knowledge of the standard technic for the examination of the vestibular apparatus is familiar to the members of this section. Interpretation of responses obtained by a standard technic is not so readily understood, largely because of our ignorance of the histologic anatomy of the central nervous system. Postulates in medicine are the result of imagination plus clinical experience, developed in the light of existing knowledge. They are only to be considered as tentative and subject to change as progress occurs, or to confirmation by anatomic, physiologic and pathologic evidence.

Bárány's original report on after-turning horizontal nystagmus showed wide discrepancies (from zero to 120 seconds), making its interpretation difficult to the average otologist. Mackenzie, whose investigations extended over a period of eight years (1906-1914), reported findings in after-turning horizontal nystagmus in normals in which the average duration was placed at twenty-four seconds and was found to be consistently near that figure. Jones and Fisher and their co-workers corroborated these findings with a variation of two seconds, their figure being twenty-six seconds. The work of these investigators placed the figure for the duration of after-turning horizontal nystagmus on a practical working basis. Further work of Jones and Fisher led them to believe that the tracts from the horizontal and vertical semicircular canals undergo a central differentiation. Using this discovery as a working basis has resulted in clinical diagnoses which have checked in a surprisingly accurate way with pathologic findings.

Cajal's work, in which he demonstrated histologically that the fibers from the vestibular portion of the eighth nerve enter Deiters' nucleus and thence proceed to the cerebellum through the inferior cerebellar peduncle, has been accepted. According to the views of Jones and Fisher, these are the fibers from the horizontal canal, and they claim further that the vertical canals' fibers shunt Deiters' nucleus, passing to the inside, and ascend into the pons, and in some undetermined center undergo branching which they describe as a Y, the vertigo fibers entering the cerebellum through the middle cerebellar peduncle; whereas the nystagmus fibers enter the posterior longitudinal bundle and are thence carried to the nuclei of the third and fourth cranial nerves. They also describe a Y in the branching of the horizontal canal fibers, one branch of the Y carrying the vertigo fibers through the inferior cerebellar peduncle to the cerebellum—these being the fibers demonstrated histologically by Cajal—and the other carrying the nystagmus fibers which enter the posterior longitudinal bundle and thence proceed to the nuclei of the third and sixth cranial nerves. The vertigo fibers from the vertical and horizontal canals meet in the nuclei of the cerebellum—i. e., fastigii, emboliformis and globosus—and proceed together, decussating in the crura cerebri to the first and second temporal convolutions of the opposite side, which have been postulated by Mills as the "vertigo center."

From this postulation certain syndromes have been developed which, in association with the proportionate or disproportionate impairment of responses, assist us materially in differential diagnosis. As these are familiar to you, their recital will be unnecessary. Any definite deviation from the normal is usually to be considered on a pathologic basis until proved otherwise, and an attempt should always be made to check

the findings on a single lesion basis. The wide application of these newer ear tests can probably be best shown from a group of case reports.

REPORT OF CASES

Case 1.—George J., aged 2½ years, referred to me by Dr. Harry Carey, March 1, 1917, one of three children, whose father and mother are living and in good health, developed normally until about a year before I saw him, when he gradually became unable to walk. He had been worse recently; he could not sit up and could barely move his legs, but had better use of his arms. The child, according to the statement of his parents, moaned and picked his nose for hours at a time. He had had frequent vomiting attacks, and because of these was treated for "stomach trouble." The tongue was frequently protruded from the mouth. A continuous, spontaneous horizontal and rotary nystagmus of wide excursions was present, when looking to either side and straight ahead. Examination of the eye was difficult because of this spontaneous nystagmus. There appeared to be no paralysis of the extraocular muscles. The pupils were unequal but not dilated. The right eye presented a few anterior synechiae; the cornea was hazy and gave the appearance of early corneal ulceration and rupture. The left pupil reacted to direct and consensual light. Examination of the left fundus was difficult, but there was no evidence of choked disk or macular area degeneration. The corneas were sensitive to touch. The seventh and auditory portion of the eighth nerves appeared to be intact. No reflexes could be obtained from the arms, legs or abdomen. No evidence of rachitis could be elicited; the child had the facies of a cretin; both membrana tympani were intact.

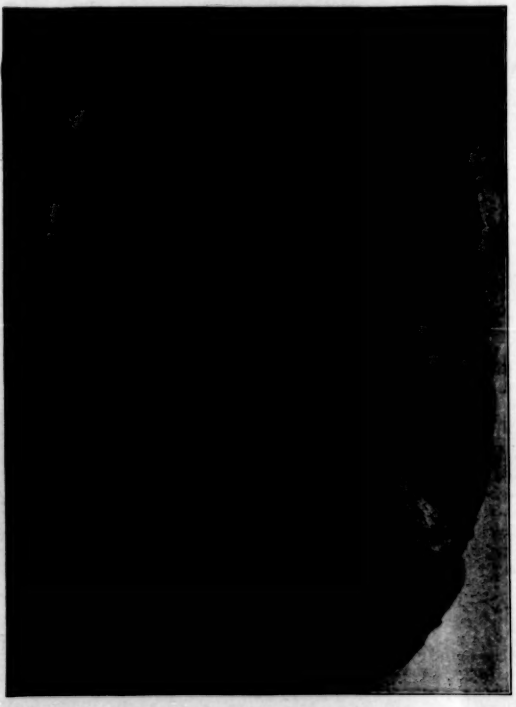

Fig. 1 (Case 3).—Hardened brain with section removed for microscopic examination from what proved to be a glioma.

The child was held in the arms of the father and both turned in the chair. The eyes could be pulled in any direction desired by the turning reaction, but the induced nystagmus was of only from five to ten seconds' duration, when it would again revert to the wild spontaneous type. At times there was a tendency to conjugate deviation after turning and douching. Douching both ears produced the normal type of nystagmus from all canals, but it was likewise subnormal. Past pointing or falling reactions could not be elicited. The Wassermann reaction was +.

The irritation in this case appeared to be supranuclear as stimuli went through the lower paths. Antisyphilitic treatment was instituted and the child made an apparently complete recovery within a few months. A report in October, 1917, stated that the child was in good health and was normal in all respects except that he stuttered occasionally. From the examination of the vestibular apparatus in this case I was able to give a favorable prognosis.

Case 2.—Mr. F. S. R., aged 51, referred to me by Dr. Claude G. Hoffman, with the history that for the past two years the patient had suffered frequently from vertigo and a tendency to stagger to the right, had experienced two severe attacks, one in January, 1916, and the other in June, 1917. Vertigo was of such severity that he had to support himself to prevent falling. The patient admitted syphilitic infection, but examinations of both blood and spinal fluid were Wassermann negative. He was referred to me for vestibular examination in the hope that this would clarify the diagnosis. Neurologic examination was negative. The right eye was blind as a result of "eclipse gazing." The right pupil was contracted and did not react to light. A large central opacity was present in the lens. The disk head was atrophic and the vessels were small. The left pupil measured 4 mm. and reacted to light and accommodation. The left fundus was negative, except for the presence of early arteriovenous compression. Examination of the hearing in both ears was negative, except for slight middle ear deafness and shortened bone conduction.

Examination of the vestibular apparatus gave very confusing and contradictory results. There was a tendency to spontaneous nystagmus upward with a slight spontaneous past pointing of the left arm to the left, and this arm could not be made to past point to the right either by douching or by turning. Turning to the right produced a large horizontal nystagmus to the left of thirty-four seconds' duration with a tendency to conjugate deviation, with subnormal vertigo and no past pointing of the left arm. Turning to the left produced a large horizontal nystagmus to the right of twenty seconds' duration, with a tendency to conjugate deviation, a subnormal vertigo, and an exaggerated past pointing to the left of both arms. The falling reactions after turning were normal.

Douching the right ear with water at 68 F. produced a rotary nystagmus to the left, with a tendency to conjugate deviation, which appeared after thirty-five seconds. No vertigo nor past pointing could be elicited with the head 30 degrees forward, 60 degrees backward or 120 degrees forward. With the head 60 degrees backward there was also a tendency to conjugate deviation. The patient fell to the right regardless of the position of the head. Douching of the left ear produced practically the same result after thirty-nine seconds. Water at 112 F. reversed the nystagmus, but had no effect in

reversing the other responses. The patient's falling reactions after douching the left ear were normal.

The galvanic tests were: Right ear, cathode 6 ma. produced rotary nystagmus to right; anode 5 ma. produced rotary nystagmus to left. Left ear, cathode 7 ma. produced rotary nystagmus to the left; anode 5.5 ma. rotary nystagmus to the right.

The tests were suggestive of a low grade basilar meningitis, and such a report was rendered. Swift-Ellis intraspinal treatment was instituted, and later the spinal fluid and blood were Wassermann positive; a cell count of forty-five was present with markedly increased globulin. The Wassermann tests were all made by the same laboratory. In this case the vestibular tests appeared to go beyond the blood and spinal fluid Wassermann, and the Swift-Ellis method apparently produced a provocative result.

CASE 3.—Mr. J. L., aged 40, Hebrew, designer, was referred to me by Dr. Claude G. Hoffman, Jan. 27, 1919, for examination of his vestibular apparatus. His father, mother and two sisters were well. He had the usual diseases of childhood; six years before, he had pneumonia followed by empyema of the right chest, necessitating a rather extensive operation, from which he made a good recovery.

About four years before, he began to have headache and vertigo. He had some tonsillar symptoms at that time; the tonsils were removed without relieving the headache and vertigo. Three years before, a ++++ Wassermann of the blood was obtained. He received ten intravenous injections of what he supposed was arsphenamin. In January, 1919, two blood and spinal fluid Wassermann tests were flat negative with three antigens. Antisyphilitic treatment was given, with no clinical result. The preceding summer he had a very severe attack of vertigo associated with nausea, vomiting and headache, parietal and occipital. Since then vertigo and headache had been more or less continuous. Neurologic examination was negative.

Hearing tests disclosed a slight middle ear deafness with a shortened bone conduction. Rinne's test was positive; Weber's in the head. The patient had spontaneous nystagmus to the right of the second degree and also to the left, more marked, of the second degree. Spontaneous vertical nystagmus was also present. No spontaneous past pointing was elicited. In being tested for the pelvic girdle reactions the patient fell to the right, or left, or forward, but not backward. On turning to the right a horizontal nystagmus to the left of twenty seconds' duration and good amplitude was elicited. Past pointing was present but subnormal; vertigo also was subnormal, of ten seconds' duration. On turning to the left a horizontal nystagmus to the right of thirty seconds' duration and good amplitude was obtained. Past pointing and vertigo were present but subnormal. Falling reactions were normal. The patient was much disturbed by the turning, suffering from nausea and severe vomiting. He was told to return the next day for ear douching, but failed to appear.

Feb. 18, 1919, I was called to see the patient at his home by Dr. William A. Jenkins. At that time the spontaneous vertical and horizontal nystagmus of the second degree to each side was still present. There was slight choking of both disks, the right being more involved than the left. The patient had been in bed for three weeks. Neurologic examination was negative except for a slight dysarthria. He also complained of photophobia and a sound of falling water in both ears, of the same degree on each side. Fields taken at this time were negative. Vision was normal, as was the tension of both eyes; decompression was advised.

I did not see the patient again until December 12, when I was asked to examine him by Drs. B. F. Zimmerman and H. S. Eggers. The spontaneous vertical and horizontal nystagmus of the second degree to each side was still present. Turning to the right produced a horizontal nystagmus to the left of large amplitude and twenty-five seconds' duration. Vertigo and past pointing were subnormal. On turning to the left, horizontal nystagmus to the right of large amplitude and twenty-seven seconds' duration was obtained. Past pointing was exaggerated and prolonged with both arms; falling was normal.

On douching the right ear with water at 68 F., the head being 30 degrees forward, a rotary nystagmus to the left

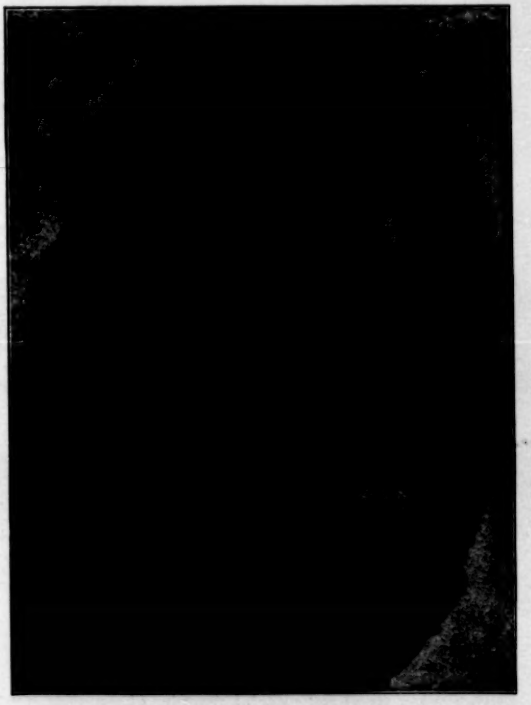

Fig. 2 (Case 3).—Horizontal section through hardened brain showing area and extent of tumor involvement.

was obtained in one minute and twenty seconds. The right arm past pointed once to the right, but the left arm failed to past point. When the head was thrown 120 degrees backward, a large horizontal nystagmus to the left occurred, with subnormal past pointing of the right arm, but none with the left arm. On douching the left ear with water at 68 F., the head being 30 degrees forward, a rotary nystagmus to the right was obtained after three minutes. The right arm showed subnormal past pointing, the left arm no past pointing. With the head thrown backward 120 degrees, a large horizontal nystagmus to the right was elicited with subnormal past pointing of the right arm but none with the left. Both disks were still choked with beginning atrophy.

The only localizing signs of value were obtained from the Bárány tests, and suggested a posterior left fossa lesion. I

advised approach to the brain posteriorly on the left. The other consultants disagreed with my findings, so a temporal decompression on the right was performed, December 13. When the skull was opened the dura was bulging, but pulsated under the finger. The brain bulged when the dura was incised. The wound could not be closed until ventricular puncture through Keen's point was made. The ventricular fluid spurted about 8 inches from the needle. Phenolsulphonephthalein injected into the ventricles had not appeared in the spinal fluid from lumbar puncture after twenty minutes. The patient continued to eliminate the drug by urine for forty-eight hours afterward. Functional test of the kidney was negative. The decompression did not affect the spontaneous nystagmus or the choked disks, but did relieve the headache.

The patient died, March 16, 1920. Necropsy by Dr. Stuart Graves disclosed a brain tumor of the left cerebellopontile angle, invading the left cerebellum, which from its unencapsulated, soft, vascular condition appeared to be a glioma. No marked external evidence of internal hydrocephalus was present. No evidence of basilar or cortical meningitis was disclosed. The most interesting features were the spontaneous vertical nystagmus and the blocking of both vertical canal fibers in the brain stem, with the absent past pointing of the left arm by douching. The unusual feature was no disturbance of hearing in the left ear with the extent of the tumor involvement.

COMMENT

The reliability and accuracy of nystagmus as a test has been subjected to question, because of the effect of repeated rotation on this reflex, some investigators claiming that its gradual reduction was such as to vitiate its value in practice. The results attained by various types of research have been so contradictory that, for the present, judgment would best be suspended. I have had the good fortune to subject several professionals to the turning reaction, and my results have shown that the work done by these persons, consisting of revolutions much more rapid than could be produced by the turning chair, have had no effect in reducing the duration of normal nystagmus, although a marked reduction occurred in vertigo and its objective responses—falling and past pointing.

The effects of intracranial pressure constitute a great stumbling block in differential diagnosis in all methods of intracranial localization, and the Bárány tests offer no exception to this rule, as witness the Bárány positive results in internal hydrocephalus. This criticism, therefore, cannot be directed to the Bárány tests alone. One must ever be mindful of the fact that pressure can "spill the beans" in any method of intracranial localization. In an unpublished paper by Lillie of the Mayo Clinic, which was read before the Minnesota Academy of Ophthalmology and Oto-Laryngology, a report was made of the value of the Bárány tests in neurologic diagnosis in 100 consecutive nonselected cases. The Bárány findings, per se, in certain intracranial lesions were of more significance in localization than the eye findings.

The neurotologist of the future should not only be able to give data of confirmative and suggestive value, but should in addition be in position to suggest proper medical or surgical therapy. He should avoid the attitude of the medical neurologist who makes a diagnosis and then stops or depends on some obsolete therapeutic method and waits until the time for giving proper aid has passed. I recently heard a criticism of such work in which the examiner attempted to draw too fine a diagnosis, his enthusiasm and his knowledge of neurology becoming so scrambled that theory swept him from the moorings of reason. When asked what was to be done for the patient he retorted: "That is not for me to say—I only make the diagnosis!"

The otologist should have a working knowledge of the intracranial neurology of the eighth nerve, just as the ophthalmologist knows the optic nerve and its intracranial pathway, and with this training he is better qualified to make neurotologic examinations, just as the ophthalmologist is better qualified to make perimetric and fundus examinations.

The various fields aforementioned will be skeptical of neurotologic assistance in diagnosis, just as they were of the value of choked disk until shown by the ophthalmologist. Permit me to offer a word of caution: do not expect too much of neurotology, and always remember that we are dealing with one-half of one of the twelve cranial nerves. "Grief percentage" will be high as in all pioneer work, but comparison of the results of Cushing in the gradual lowering of mortality during the past decade is worthy of consideration and emulation. Prevention of unnecessary operations, the determination of whether a case is operable or inoperable, and the best route of surgical approach comprise the goal to be attained.

CONCLUSION

I desire to make a plea for a wider use and application of the vestibular tests, with closer cooperation to determine their ultimate value in our armamentarium, and a suggestion that the rhinologist, otologist, neurologist, ophthalmologist and surgeon take a more active interest in the nervous system in its entirety, rather than in that part pertaining to their respective specialties. It is to the attainment of such an ideal that I would commend your efforts and cooperation.

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ABSTRACT OF DISCUSSION

Dr. Harold L. Lillie, Rochester, Minn.: These ear tests are very helpful. Our neurologists are cooperating well with us in this work and feel that we have added something to their armamentarium which is frequently helpful. The findings and results are all objective, whereas the neurologic findings are essentially subjective. The neurotologic findings are frequently of definite localizing significance. There are several cleancut symptom complexes which may be ascertained from ear tests. Any expression decrying the value of these tests is based on insufficient knowledge and experience with them. One hears the objection that the tests are difficult and the result of the interpretation indefinite. That is true, but that is true of neurologic diagnosis in general. Exploratory operations are frequently made by general surgeons on suspicion. Only by careful reports on carefully studied cases will we be able to arrive at any definite information in this respect. In occipital lobe lesions there are seldom any objective findings from the ear test, whereas in the posterior fossa or the brain stem, the effect is on the ear tract directly, early, and indirectly, either early or late. The early pressure apparently gives a hyperactivity of responses from the anterior or supratentorial fossa lesion. It is my opinion that those ear tests will have a wider application of usefulness as our experience grows.

Dr. George W. Mackenzie, Philadelphia: Prior to Bárány's time quite a few patients with labyrinth suppuration had been operated on after the radical mastoid method, leaving the labyrinth untouched. Naturally fatalities followed. Later on as Bárány's technic was improved, he was better able to make accurate diagnoses of labyrinth suppuration, and to operate more successfully. For a few years Bárány's indications for operation on the labyrinth were quite uncertain, especially regarding the duration of after-turning nystagmus. After-turning he found in normal individuals,

cases without any reaction whatever, in other normal individuals an after-turning nystagmus of 120 seconds. Furthermore, he found patients now and then after long turning with what he termed "nach nach nystagmus" which has never been corroborated. The explanation of these discrepancies in normal individuals was entirely the result of faulty technic. I wish to plead for careful technic. For instance, while making the caloric test we frequently have the patient incline the head laterally at an angle of 45 degrees to the perpendicular away from the side being tested. In this position the patient tends to manifest a horizontal nystagmus to the same side of very wide excursions. Later on, but during the same test, a rotary nystagmus to the other side occurs of short excursions. There is an anatomic reason why the horizontal nystagmus should be of wider excursion than the rotatory, namely, in the construction of the eye muscles. Normally, one can sweep the eye horizontally over an arc of 90 degrees. In the case of rotatory nystagmus, which is produced by the operation of the oblique muscles, the mobility is considerably more limited. When the test for horizontal nystagmus is made, as is frequently done, it is rather difficult to determine the difference between rotatory nystagmus to the opposite side with a short excursion, and the horizontal nystagmus for the reason that both forms (horizontal and rotatory) occur in the same direction when it is difficult to determine the moment when the nystagmus changes its character from rotatory to horizontal or vice versa. On the other hand, if the test for the horizontal nystagmus is made with the head inclined to the opposite shoulder, the nystagmus is to the side being tested; therefore it becomes less difficult to determine just when the rotatory nystagmus to the opposite side changes to horizontal nystagmus to the same side and vice versa.

DR. LEE W. DEAN, Iowa City: The expression is often used that vestibular tests are an aid in diagnosis. Occasionally the result of the vestibular test makes the diagnosis. I have examined hundreds of neurologic cases, employing the Bárány technic, and in nearly all the cases the results have been unsatisfactory so far as the localization of the lesion is concerned. However, every now and then much information is secured from this examination. In one case I based the diagnosis solely on the history and the Bárány test. In another case a general surgeon and a neurologist made a diagnosis of brain abscess which they were unable to locate. I made a diagnosis of abscess somewhere between the cerebral cortex and the ocular nuclei. The surgeon operated and drained a frontal abscess.

DR. JULIUS GRINKER, Chicago: Team work is helping us considerably in diagnosis. That is well illustrated in cerebellar lesions and lesions in the temporal lobe, as well as in cranial nerve disease. Cerebellar abscess can be better diagnosed with the aid of some of the newer tests, but, on the other hand, the otologist will make mistakes in cases of pure neurologic lesions unless he knows something about the symptomatology of nervous diseases. The neurologist should, for a time at least, go into an otologic, ophthalmologic and rhinologic clinic. On the other hand, the ophthalmologist and otolaryngologist would profit by a visit to the neurologic clinic.

DR. JOSEPH D. HEITGER, Louisville, Ky.: It is no wonder that some tests cannot be interpreted properly, because the technic is wrong. Therefore you cannot have correct interpretation. And in interpretation we must keep in mind the visual course of the tracts. In making these tests the neurotologist must not claim too much. We are dealing with only one-half of one of the twelve cranial nerves. If you can give suggestive information or confirmatory findings, you will have done your share in a diagnostic way. Do not let your failures discourage you, and do not become too elated over your successes. These examinations should be made by the otologist just as the examination of the fundus by the perimeter should be made by the ophthalmologist. I want to make a plea for wider use and application of these tests, and that the rhinologist, the otologist, the ophthalmologist, the neurologist, the internist and the surgeon make a study of the nervous system as a whole rather than that particular part pertaining to their individual specialties.

OPTIC NEURITIS, ASSOCIATED WITH DISEASE OF THE NASAL SINUSES

REPORT OF TWO CASES *

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This report of two similar cases of eye disease is made to call attention again to the intimate relation which exists between diseases of the eye and disease of adjoining structures, and to encourage a search for a definite cause for ocular disease of certain types. It is not feasible to review the voluminous literature of the subject except in a general way, and while the number of reported cases in which this connection exists is large, there is still need for the report of each additional well defined case, in order to establish as firmly as possible these comparatively new facts, that the management of these cases may be placed on the most rational instead of an empiric basis.

The dependence of ocular disease on nasal disease has been long recognized. The relation between conjunctival and lacrimal disease and inflammatory affections of the nasal mucous membrane is often

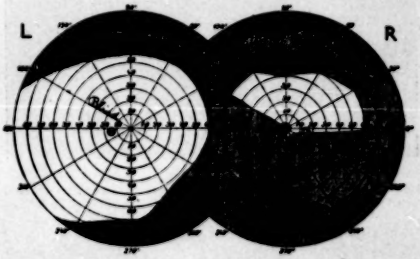

Fig. 1 (Case 1).—Fields of vision at first examination.

observed, while more recently the connection between deeper seated and more serious ocular disease and diseases of the nasal sinuses has been established.

Ocular disease appears to arise from nasal disease in one of two ways: either by absorption of toxins from a focus of suppuration, just as a focus of suppuration elsewhere in the body may act, or by contact between the pathologic process in the nose and some ocular structure. As an instance of the former type, inflammatory affections of the uveal tract are seen, apparently dependent on nasal suppuration or ulceration. The other type is represented by inflammation of the optic nerve from contact with inflammatory processes in the posterior nasal sinuses, as occurred in the following case:

CASE 1.—Mrs. T. A., aged 35, was referred to me, Dec. 27, 1919, by Dr. Shelby Spencer of Shannon, Miss., with a history of a cold which began in her chest, about the middle of November. She was not sick enough to consult a physician until December 12 when she saw Dr. Spencer for a pain in the left cheek of two or three days' duration. A couple of days later a yellow discharge began to come from the left nostril, and this has persisted. December 23, she noticed on waking that the vision was very much blurred. This was worse the

* Read before the Section on Ophthalmology at the Seventy-First Annual Session of the American Medical Association, New Orleans, April, 1920.

next day, and still worse on the 25th, when atropin was instilled, and by evening the vision was entirely gone in the left eye and very poor in the right. There was no further change till I saw her, December 27.

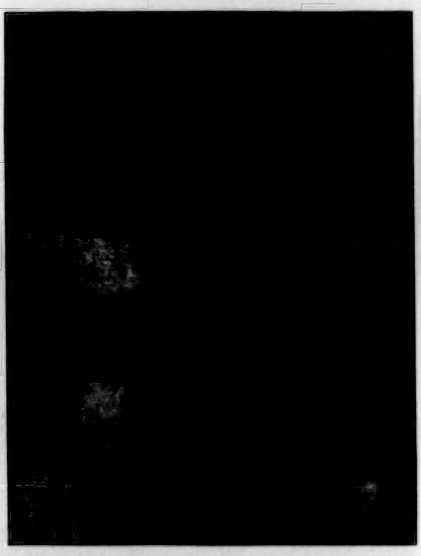

Fig. 2 (Case 1).—Anteroposterior roentgenogram of the head, showing clouding of the frontal sinus, ethmoids and antrum, on the left side, especially.

The vision of the right eye was 10/200; the pupil was dilated and fixed, probably from atropin. There was marked papilledema, with swelling of 3 D., and a few small hemorrhages at the edge of the disk. The rest of the fundus was normal. The field is shown in Figure 1. The left eye was blind; otherwise the findings were the same as in the right eye. The nose showed some pus coming from under the left middle turbinate. The right nostril was clean. Transillumination, left antrum and frontal dark, right clear. A roentgen-ray examination was made by Dr. L. H. Chapman, who reported: "Left frontal, ethmoids and antrum filled with granulations or pus. Right frontal, ethmoids and antrum show cloudy, but not filled. Sphenoid also cloudy." These changes are shown in Figures 2 and 3. A neurologic examination was made by Dr. W. G. Somerville, who reported as follows: "The neurologic examination of Mrs. A. is negative, except as to what you have already found, viz., the optic neuritis. I do not know whether it could occur, but it seems possible that the neuritis is due to, or secondary to, the inflammation of the antrum. It might be well to have another examination of the urine made. A Wassermann examination I do not think necessary." The patient was subjected to a thorough physical examination by Dr. O. S. McCown, with negative results. The Wassermann test was negative. There were 16,400 leukocytes, of which 76 per cent. were polymorphonuclears, 18 per cent. small lymphocytes, and 6 per cent. large lymphocytes. The urine, at first examination, showed a trace of albumin and indican; specific gravity, 1.030. A second examination detected no albumin, no sugar and no casts, but a few pus cells.

Puncture of the left antrum produced a tablespoonful of pus. December 30, Dr. John Shea operated on the sinuses. On each side the anterior half of the middle turbinate was removed, the ethmoid cells broken down, and working backward, the posterior ethmoids and sphenoids were opened. The ethmoid cells were soft and contained pus. The sphenoids contained pus which was free from odor. The left antrum was opened freely into the nose near the floor. The pus from the nose showed staphylococci and streptococci, the latter predominating. The extensive opening of all the sinuses was justified by the serious nature of the visual disturbance, which we attributed to the condition of the sinuses.

January 1, two days after the operation, the patient could count fingers with the previously blind eye. This improvement continued, and on the sixth day she saw some rabbits on the roof of a laboratory building next door to the hospital. January 8, she was tested, and saw 20/30 with each eye, with fields as shown in Figure 4. The eye grounds showed the same changes as at first except that the swelling was less, being now about 1 D. January 26, vicion 20/20, and J. 1 in each eye, the pupils normal and active, and the fields as shown in Figure 5. The contraction of the color fields will be noted, as well as the interlacing of the colors. The nerves were no longer swollen, but both were pale and the outlines were blurred. The nose showed some crusts, but no pus, and the sinuses all were clear to transillumination. February 23, the nerves showed a moderate degree of postneuritic atrophy. Vision is 20/20 and 20/20 minus 2 and J. 1 in each eye. Fields about the same as shown in Figure 5.

A second case was as unconvincing as it was unsatisfactory:

Case 2.—Mrs. E. F., aged 31, was referred to me by Dr. Harry Wolff, Oct. 21, 1919, for impairment of vision. She had had a severe attack of typhoid in 1913, and three or four

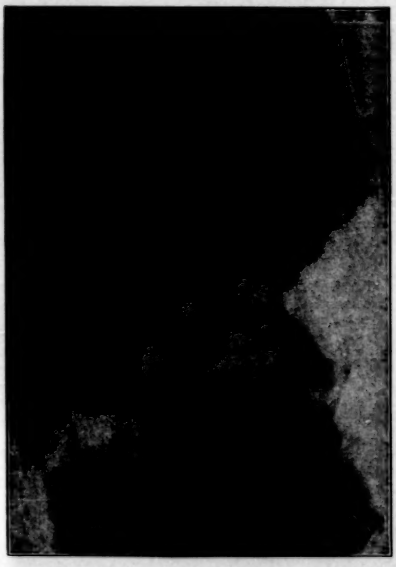

Fig. 3 (Case 1).—Lateral roentgenogram of the head, showing the sphenoids apparently but slightly affected.

years before the present trouble she was thrown from an automobile, striking the left side of the forehead, and receiving a scalp wound. She was unconscious about thirty minutes. Since that time she has occasionally lost control of the blad-

der, and also has pain over the eyes at times. For two or three months, she has had occasional vertigo, and for about four weeks a headache all over the head. For two weeks she had been free from headache, but the vision of the right eye had been very bad for that length of time. The vision of the right eye was perception of light. The field is shown in Figure 6. The nerve head was swollen 2 D. and was light in color. There was no ocular paralysis. The vision of the left eye was normal, with correction; the field, as shown. Otherwise the eye appeared to be normal. The pupils were equal and normal.

Transillumination of the nasal sinuses showed them all to be clear, but the frontals seemed very small. The outer aspect of the right middle turbinate was very edematous. Roentgen-ray examination by Dr. L. H. Chapman revealed: "right suborbital ethmoids cloudy, right frontal very small; antrums show thick membranes but no pus." The neurologic report by Dr. W. G. Somerville, besides noting the condition of the eyes, was: "A slight diminution of the sense of smell in the left nostril; no other cranial nerve paralysis. No sensory changes, but the patient complains of tingling and numbness in the hands and feet. There is no paralysis of the face, but the right hand is weaker than the left, the dynamometer giving, right 20 kg.; left 27. The right lower extremity is slightly weaker than the left. The tendon reflexes are present and brisk, no noticeable difference between the two sides. There is a doubtful Babinski of the

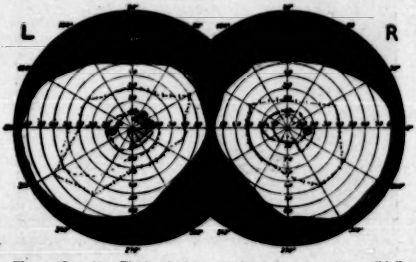

Fig. 4 (Case 1).—Fields of vision ten days after operation: solid line, white; dashes and verticals, blue; broken line, red; dots and dashes, green.

right side. The symptom of a slight paresis of the right side, with an optic neuritis, are indicative of a cerebral lesion of the left side of the brain, notwithstanding that the optic neuritis is much more severe on the right. Just what connection there is with the old injury it is impossible to say." He advised iodids and watching. The Bárány tests disclosed delayed vestibular reaction, suggestive of a functional disturbance, probably of toxic origin.

The general physical examination and the Wassermann test were negative. The patient was seen by Dr. P. M. Farrington with reference to some work on her nose, but he was not convinced that it would help matters, and delayed doing anything until December 8, when he removed a part of the right middle turbinate, and curetted the anterior ethmoid cells and entered the frontal sinus on that side. Pus was found in both the ethmoids and frontal.

There has been no change in the vision, but the swelling has almost disappeared from the right nerve head. Both nerves are quite pale, but the left field is better than when first taken, in that the large relative scotoma has disappeared, a small absolute scotoma persisting below and another one having appeared down and in. The field in the right eye is unchanged. There are no new symptoms otherwise.

There was in this case no evidence of sphenoid or posterior ethmoid disease, no discharge and no changes demonstrable by the roentgen ray; and while some anterior sinus disease existed, it is doubtful whether it had anything to do with the condition of the optic nerve unless by the action of absorbed toxins. Possibly the inflammation had lasted too long to be influenced by the removal of the cause. The case is reported as of interest in connection with the first one.

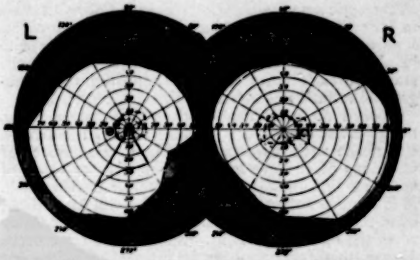

Fig. 5 (Case 1).—Fields of vision four weeks after operation: solid line white; broken line, red; line of of dots and dashes, green.

The close relation which exists between the optic nerve and the sphenoid sinus is well known. In a study of this relation in 100 skulls, Francis and Gibson[1] were struck with the thinness of the partition between the two, and noted that "one third of optic nerves and commissures are shielded from the sphenoidal sinus by a thin paper-like bony wall measuring a quarter of a millimeter [$\frac{1}{100}$ inch] or less in thickness." Without figures at hand to substantiate it or to give an estimate of its frequency, we know that specimens are seen in which an actual dehiscence exists, and in such cases the likelihood of a sphenoidal or posterior ethmoidal suppuration affecting the nerve is very great. The nerve under these circumstances may show a retrobulbar neuritis, manifested only by a disturbance of vision and a central scotoma, or less often, an optic neuritis with visible changes in the nerve head. Even a papilledema may result, as in the first case. The visual defect varies greatly, from an enlargement of the blind spot, only to be detected by careful perimetric examination, to loss of light perception, as in the case

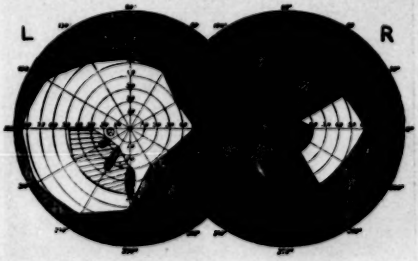

Fig. 6 (Case 2).—Fields of vision at first examination; subsequent examinations detected very little change.

mentioned. Changes in the color field, especially color scotoma, are seen in these organic cases, and the perimetric changes may be of great assistance in separating the organic from the different types of psychic blind-

1. Francis and Gibson: Tr. Am. Acad. Ophth. and Oto.-Laryng., 1908 and 1910.

ness. It would hardly be proper to say that the differentiation can be made by this means alone, since the manifestations of psychic blindness are varied and not characteristic.

The ocular lesion in disturbance from posterior ethmoidal and sphenoidal disease is practically always of the optic nerve, which is certainly not often the case in affections of the anterior sinuses. Posey has reported a case in which an optic neuritis appeared to be dependent on a frontal sinus infection; but the study of such cases with the improved roentgenographic technic might lead to different conclusions.

Looked at from the rhinologist's point of view, these cases are rare. Judging from an extensive experience with diseases of the nose, the number of affections of the eye in a given number of cases of nose and sinus disease of any character is very small. It is the eye surgeon, therefore, who will meet them, since the disturbance of vision is the prominent factor when the optic nerve is involved, and the optic nerve disease, therefore, need not be dreaded as a frequent complication of nasal sinus disease.

Striking features of the condition under consideration are the sudden onset of the visual disturbance, and its equally sudden improvement when the nasal

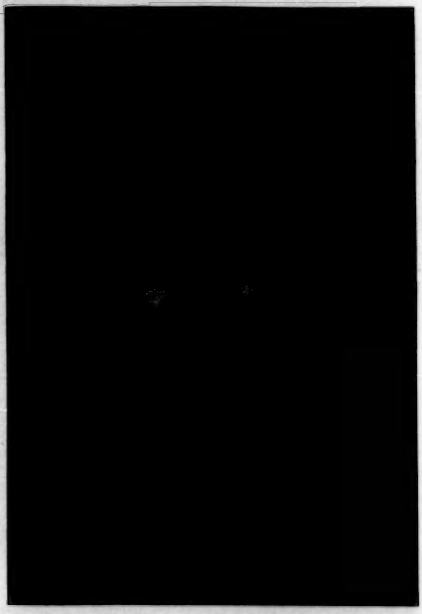

Fig. 7 (Case 2).—Anteroposterior roentgenogram showing clouding of the suborbital ethmoids, especially on the right side.

condition is relieved. This was marked in my first case. In a case reported by Place,[2] vision improved, following irrigation of the sinuses, from 2/200 and 3/200, to 15/50 and 15/200 in two days. In Dawson's[3] case, the vision began to improve in two days following a submucous resection and curettement of the ethmoids, and in four days had risen from perception of light to normal.

The care necessary to arrive at a diagnosis of disease of the posterior nasal sinuses is well known, but

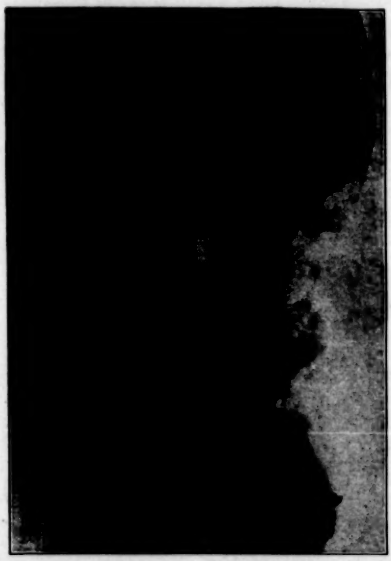

Fig. 8 (Case 2).—Lateral roentgenogram, showing the sphenoid sinus, which is apparently clear.

is a matter which mainly concerns the rhinologist. Nevertheless, we should bear this difficulty in mind and request repeated examinations, if necessary. The development of a good technic for the roentgenographic investigation of these sinuses has put the question of their diagnosis on a much more satisfactory basis, and such tragic experiences as that related by the late Wendell Reber[4] are not likely to be repeated. He saw a woman with unilateral optic neuritis in whom several examinations of the nose were made with negative results. In spite of his importunities, the rhinologist was not willing to operate, and the patient developed a brain abscess and died, the necropsy disclosing that it had its origin in the nasal sinuses. Several similar cases have been reported, the literature being, as stated, quite voluminous.

2. Place: Long Island M. J., March, 1918.
3. Dawson: J. Laryngol., June, 1918.
4. Reber, Wendell: Tr. Am. Acad. Ophth. and Oto.-Laryng., 1910.

Sickness and Poverty.—So much of destitution is due to sickness that the separation of the two problems is inconsistent with success. "One third of all the paupers are sick, one third children, and one quarter either widows encumbered by young families, or certified lunatics." There are economic causes of poverty apart from sickness, but it is essential to remember that every disease which is controlled frees the community not only from a measurable amount of sickness, but from the amount of poverty implied by this sickness.—Arthur Newsholme, *Commonhealth*, November-December, 1919.

OPTIC NERVE DISTURBANCES IN DISEASES OF THE POSTERIOR NASAL SINUSES *

JAMES BORDLEY, JR., M.D.
BALTIMORE

Probably one of the discoveries of the most far reaching value to ophthalmology was that of the blind spot by Mariotte in 1668. Even his assumption that it proved the choroid to be the light sensitive element of the eye cannot detract from its importance.

The significance of this discovery is amply demonstrated by the anatomic studies, theories and clinical observation which it stimulated. Of greatest importance, so far as this communication is concerned, is the fact that it ultimately resulted in the location within the body of the optic nerve, not only of the peripapillar, but of the papillomacular bundle of nerve fibers.

There has been from time to time since 1668 much discussion as to the reason for the blind spot, and it remained for Donders in 1852 to demonstrate beyond dispute that it corresponds to the entrance into the globe of the optic nerve. In 1859, Cassius found that certain pathologic conditions alter the shape of the blind spot by enlarging it. As a corollary it became essential that the course of the fibers that supply the retina immediately around the optic disk should be traced in their course through the optic nerve. Fuchs demonstrated that these fibers are the most peripheral of all the fibers in the optic nerve. He proved that they were in the vascular portion of the nerve, and assumed that they were in the intracanalicular portion.

Leber, in 1869, published a report of his first case of toxic amblyopia with central scotoma. He declared the fibers from the macula pass through the nerve directly under the vaginal sheath. In 1874 he brought forward additional cases and then asserted that the papillomacular bundle and the peripapillar fibers are both peripherally located. Samuelson, in 1882, was fortunate enough to get two eyes with central scotomas from toxic amblyopia. Serial sections of the nerves enabled him to demonstrate the course of the fibers through the full extent of the nerve. In the vascular portion the papillomacular bundle is V shaped, occupying at its base about one third of the periphery, the apex of the figure reaching to the center of the nerve; in the avascular portion, the shape of the bundle becomes round, receding from the periphery and exact center; in the intracanalicular portion it becomes crescentic, lying immediately in contact with the vein of Vossius.

The position of the papillomacular and the peripapillar fibers in the optic nerve has led to countless theories as to the cause of scotomas associated with disease of the nasal accessory sinuses. Before proceeding to a brief discussion of these theories, I want to call to mind some other essential anatomic considerations in dealing with the nasal sinus disease with optic nerve involvement.

First, the lateral and inferior walls of the orbit in the neighborhood of the accessory sinuses are, as a rule, very thin and are covered by periosteum which is closely attached and which is frequently penetrated by numerous diploic veins which arise in the sinus walls and empty into the orbital veins. As the periosteal covering of the orbit passes into the optic canal, it becomes so interwoven with the dural sheath of the nerve as to be microscopically inseparable from it. The walls of the optic canal frequently separate the nerve either from the sphenoidal sinus, the most posterior of the ethmoidal cells, or from both, as has been so beautifully demonstrated by the published studies of Loeb and Onodi.

Second, in considering the involvement of the optic nerve in sinus disease, it is also well to bear in mind the circulation in both the orbit and the sinuses. The orbit in the main derives its supply from the ophthalmic artery, and its veins empty into the ophthalmic vein. The vascular portion of nerve is directly supplied and drained by the arteries and venae centrales retinae. The central artery and vein send off small branches which supply to the avascular portion, the posterior central artery and vein. The intracanalicular portion

Fig. 1 (Case 1).—Double sphenoid with perforation of posterior wall.

derives its supply from the small muscular branches of the ophthalmic artery, and is drained by the vein of Vossius, which empties into the cavernous sinus. This vein has numerous branches from the periosteum of the posterior portion of the orbit and from the periosteum lining and sphenoidal and posterior ethmoidal sinuses. The portion of the intracanalicular nerve occupied by the papillomacular fibers is elaborately supplied with capillaries; the more peripheral portion by small arteroids. The blood and lymph circulations of the orbit and sinuses are intimately interwoven.

The various theories which have been enunciated to prove the causal relationship between sinus disease and optic nerve disturbances are based almost entirely on these anatomic considerations.

While it is very generally accepted that nasal sinus disease is the exciting cause in the vast proportion of cases of orbital inflammation, optic nerve involvement in sinus disease, however, is not dependent on orbital cellulitis, nor are the pictures usually found in involvement of the optic nerve in orbital cellulitis and accessory sinus disease analogous. These facts were confused in

* Read before the Section on Ophthalmology at the Seventy-First Annual Session of the American Medical Association, New Orleans, April, 1920.

the minds of the early writers and led to the production of theories of wide divergence. We now realize that in the majority of instances the portion of the nerve originally involved is not that in the orbit, but that

Fig. 2 (Case 4).—Perforation of orbital wall.

portion which is held within the confines of the rigid optic canal.

Among the important contributors to our understanding of this subject are Van der Hoeve, Fuchs, Mendel, Birch-Hirschfeld, Uffenorde, Onodi, Loeb and Gradle. All of these authors agree on only one point: that the primary site of trouble is to be found in the intracanalicular portion of the nerve. Some of them believe that edema of the optic nerve canal, with resulting venous stasis, is the basic cause; others point to the enlargement of the blind spot as evidence of mechanical pressure and consequent interference of function; still others believe that the direct transmission of toxins from the sinuses into and around the vein of Vossius and the capillaries supplying the central bundle is the exciting cause.

After many months of careful study of these various suggestions and a fairly large clinical experience, I am not prepared to accept any one theory as the sole cause. Cases have been seen in which the rapidity of recovery could lead to no conclusion other than that of mechanical pressure; other cases seemed to come clearly within the definition of toxic amblyopia; and still others were anatomically proved to have their origin in trouble arising posterior to the optic foramen.

SYMPTOMS OF OPTIC NERVE INVOLVEMENT

A short discussion of the symptoms of optic nerve involvement cannot be out of place. First, the fields of vision. Enlargement of the blind spot has been said by some authors to be a constant symptom of disease of the sphenoid and posterior ethmoid cells. To this I cannot subscribe. I have carefully measured the visual fields in 102 patients with disease of the posterior ethmoid and sphenoid, and in only 31 per cent. was the blind spot found enlarged. This statement should be qualified, because in this series of cases there were eleven with central scotomas, in four of which the scotomas were sufficiently extensive to cover the blind spot. Some of my cases, watched from the very inception of the disease until its subsidence, never developed enlargement of the blind spot, although quite a group were subjected to repeated daily examinations. Acute sinusitis was found to be much more frequently the cause of enlargement of the blind spot than the chronic or subacute types. No relationship was found between necrosis of the walls and enlargement of the blind spot, but a definite relationship between the latter and violent swelling of the lining of the cells and posterior portion of the nasal cavity. Indeed, enlargement of the blind spot was found in acute nasal infections without manifest involvement of either the ethmoidal or the sphenoidal cells. I recall one patient with an intraturbinate abscess with marked spindle enlargement. If Fuchs' suggestion that the peripapillar fibers are peripherally located in the intracanalicular portion of the nerve is correct, and if it is equally true that pressure from edema in the optic canal will always cause disturbance in their function, it must then follow that edema in the canal is not a sine qua non of sphenoidal or ethmoidal disease. I found that four of my eleven patients with central scotoma had no enlargement of the blind spot, and in twelve with peripheral contraction, there was no involvement of the peripapillary fibers.

This brings us to the most important of the visual field changes: central scotomas. The most vulnerable part of the optic nerve is the papillomacular bundle; in the optic canal it lies in close proximity to the vein of Vossius, which receives branches from the periosteum of the orbit and sinuses; it is that portion of the nerve

Fig. 3 (Case 4).—Perforation at site of extradural abscess.

with the greatest capillary circulation; the optic canal is of rigid bony structure, which allows little expansion of the soft structures within its confines.

We have, therefore, several factors to consider in the production of a central scotoma. Birch-Hirschfeld and

others regard the formation of the central scotoma as a manifestation of toxemia, resulting from venous stasis in the optic canal; Hajek and others attribute it to compression of the optic nerve within the canal, or perineuritis; while Gradle and others look on it as a manifestation of disease extension through the intimately related soft tissues of the sinuses, orbit and optic canal.

In my series of eleven cases, as was stated above, four showed scotomas of sufficient dimensions to extend beyond the blind spot. These scotomas were absolute when the patients were first seen. The other seven cases varied from a loss of perception for red to absolute scotoma. They were all progressive up to the time of operation, and in eight the scotoma disappeared after operation without leaving evidence of damage. The time elapsing between operation and recovery varied from twenty-four hours to twenty-six days. The average was fifteen days. The elapsed time between the operation and the disappearance of the scotoma bore no definite relation to the severity of the sinusitis, but it did bear a very certain relationship to the profundity of the optic nerve disturbance. The most prompt responses were in the patients with greatest changes, in whom those changes developed with great rapidity. In other words, if the attack on the nerve was of great violence, its relief by immediate operative interference was, as a rule, most prompt. In four of these cases no pus was found in the sinuses, but there were other definite evidences of inflammation. Viewed from the perimetric findings, these cases differed in no detail from the others. In one case there was no visible evidence of disease, but opening the sinuses brought prompt relief. In all of these cases, with two exceptions, there were two quite definite periods following operation: what we term the primary stage of return of function, and the secondary stage of complete resumption of function. In other words, within twenty-four hours in nine cases, there was either a diminution in the size of the scotoma or an increase in central acuity varying with the size and character of the field change. Following this there was a period, variable as to time, during which there was no observable change. This was followed by a gradual but steady return to normal. This inclined me to believe that in most cases I was dealing with a dual cause—mechanical pressure and toxemia of the papillomacular bundle, either from stasis or extension.

In 27 per cent. of the series of 102 cases, there was peripheral contraction of the field of vision. I am extremely doubtful as to the value of this as a symptom. There was certainly no constancy in the change. In most of our cases in which there was no other field change, there was an element of nervousness, fatigue or pain, which might readily have accounted for the contraction. Contractions of the visual field in acute diseases have so frequently been noted that we were quite willing in our cases to ascribe to it no importance.

The ophthalmoscopic picture varied from a normal nerve head to profound choked disk. In eight or nine cases the variation was within normal limits; four patients had clearly defined choked disks; the balance varied from a mild venous engorgement to the typical picture seen in toxic amblyopia. I feel that the ophthalmoscopic picture is only of suggestive value.

REPORT OF CASES

It has been my fortune to see some rather unusual cases of optic nerve involvement. These cases may prove of interest in that I am able to report not only the original condition but also, in several, the postmortem findings.

CASE 1.—A man, aged 56, was stricken with violent trifacial neuralgia and dimness of vision in the left eye. He was seen within an hour of the onset of his trouble, and gave a history of an attack of "the grip" one week previously. On examination, a relative central scotoma associated with choking of the disk of the left eye was found. He neither smoked nor drank, and had enjoyed excellent health; three years previously all of his teeth had been extracted; he had no prostatic enlargement. Only a few days before, he had undergone a complete physical examination by a competent internist who reported him "normal." Ten days before his attack, he contracted a nasal cold. This had run a usual course and subsided. I placed him in a hospital where he was subjected to a searching investigation. Roentgenograms revealed a slight clouding of the right sphenoidal sinus. He was operated on, the sinus opened and nothing found. Forty-eight hours after the operation, the patient suddenly became totally blind in and had complete ophthalmoplegia of the left eye. During all this period, he had suffered much from an intense neuralgia. The posterior ethmoidal cells of the left side were opened and nothing found; the right ethmoidal and sphenoidal cells were opened at the same time and with the same result. At the end of the seventh day the eye became slightly proptosed. As there might have been either an abscess or a tumor in the orbit, a Krönlein operation was performed. The only thing found was an optic nerve fully twice the normal size and extremely tortuous. The sheath was slit in the long diameter of the nerve, and an astonishing amount of fluid was evacuated. The operation relieved neither the pain, muscular paralysis nor blindness. Some three weeks subsequent to this procedure, the patient developed signs of meningitis, and died twelve days later. The postmortem revealed a double sphenoidal sinus on the left side, the extra sinus lying immediately back of the one which had been opened. In this cell there was pus, but none in the more anterior one. There was an erosion through the posterior wall leading to the central cranial fossa (Fig. 1). From that point there was a basilar meningitis which involved all of the vessels and nerves passing through the sphenoidal fissure and optic foramen. This meningitis was walled off, and within its confines there was a quantity of fluid under tension. It was, of course, easy to account for all of the symptoms after the postmortem.

CASE 2.—A woman, aged 32, who was admitted to the Church Home Hospital on the service of Dr. Thomas Futcher, for several days had been suffering from "influenza." On the day of admission, without premonitory symptoms, she suddenly lapsed into unconsciousness. At Dr. Futcher's request, her nasal sinuses were examined and a double acute sphenoiditis was discovered. She was operated on without anesthesia, and the sinuses were found full of pus. Within twenty-four hours she had regained consciousness, but was totally blind, the pupils moderately dilated and not responsive to light. This condition continued for four days, when she found she could see objects in the periphery of both fields. Day by day, the field of vision gained from the periphery to the center, until at the expiration of thirteen days after the operation she again had good central acuity of vision. During the whole period, and for two weeks longer, she had choking of both disks. To assume that these symptoms were the result of edema in the optic canal or toxic edema of the nerve would require a vigorous imagination. It seems much more probable that she had a profound intracranial circulatory disturbance resulting from the inflamed sinuses.

CASE 3.—Case 3 was in some respects quite similar: A man, aged 47, admitted to the South Baltimore Eye and Ear Hospital after an attack of "grip" was quite blind in both eyes and had paralysis of both external recti. He was morose and very irritable; he was not a user of alcohol, and used tobacco only moderately. Physical examination revealed nothing, except ocular palsies and double choked disks. His nasal mucosa was normal in appearance, but there were shadowy areas in the posterior ethmoidal and sphenoidal regions under roentgen-ray examinations. The Wassermann test was nega-

tive. There was no apical disturbance of the teeth. An intranasal operation was decided on. A quantity of pus was found in both posterior ethmoids and sphenoids. He made a prompt recovery so far as the sight of his right eye and the muscular paralysis were concerned, but the sight of the left eye was never recovered. The most striking postoperative change of all was in his mental attitude. From a noisy, irritable, vulgar fellow, he almost immediately became one of the most tractable of patients, anxious and willing to cooperate. It is very hard to account for all of his symptoms on the assumption that he simply had edema, or toxemia of the optic nerve. He undoubtedly suffered from some profound intracranial disturbance.

CASE 4.—A boy, aged 13 years, admitted to the hospital complaining of loss of vision in the right eye, a divergent squint and intense headache, had a central scotoma in the right field, reaching almost to the blind spot; entire loss of power of the right internal rectus, and a very hazy disk. Two days later the scotoma had extended so that it included almost the whole of the field. In six days, he was blind in spite of the fact that a quantity of pus had been evacuated from both the lower posterior ethmoidal and sphenoidal cells of the right side, his condition making further exploration very hazardous. On the fifteenth day after his admission he developed a temperature and a choked disk in both eyes. This led to an immediate intracranial operation, which revealed nothing. Postmortem disclosed necrosis of the orbital wall overlying the anterior ethmoidal cells; at the lower margin of the opening there was a penetrating vein of moderate size (Fig. 2). The inflamed area in the orbit was walled off, and enmeshed in the cellulitis was the internal rectus. The inflammation had traveled upward along another vein and entered the anterior cranial fossa just to the side of the cribriform plate (Fig. 3). There was a fairly large extradural abscess.

CASE 5.—A man, aged 26, came for consultation, complaining of failing vision in the left eye, following a nasal cold. He had no ophthalmoscopic evidences of trouble, but a relative central scotoma, and an enlargement of the blind spot in the left field. He neither smoked nor drank, and was to all appearances in perfect health. Intranasal examination revealed nothing until suction was applied, when a minute quantity of pus was observed on the upper surface of the left middle turbinate bone. An immediate operation was suggested, which he declined to accept without first consulting his family. Hardly two hours elapsed before he phoned that his vision "had returned." Under urgent solicitation, he returned and his observations were confirmed. He was seen again in two weeks, and the vision and field were found quite normal. After the lapse of two years, he returned complaining of failing vision following as before a head cold. At that visit, he had a central blind area extending to and including the blind spot of the left eye, but unassociated with any abnormality in the fundus; the right eye was normal. Suction was applied as previously; but as we found, after its repetition on two successive days, neither pus nor a betterment of vision, an operation was urged and performed without delay. The sphenoidal sinus on the left side was found entirely blocked and full of pus. In twelve days subsequent to the operation, the vision and field were normal. In the first attack, at least, it seems most probable that compression of the nerve from edema in the optic canal was the most probable cause for the visual picture, while pressure plus toxemia accounted for the last attack.

COMMENT

The conclusion of this report leads us to the reason for its presentation. It has been my fortune to see a fair number of optic nerve lesions, produced by quite evident sinus disease, and it has also fallen to my lot to meet more than a few which could be determined only by close and repeated observations. There is, I believe, a too frequent study of intranasal disease by physicians who judge the probability of ocular complication by the extent of disease found; there are others who apparently conclude that, without visible evidence in the nose, it is fair to assume that no sinus disease exists. Often neither of these assumptions is correct, and they may lead to very serious consequences. When a general surgeon stands between doubt and certainty as to intra-abdominal disease, he generally plays safe by "looking" into the peritoneal cavity. Assuming that the operator is qualified, and assuming also that all other probable causes have been eliminated and that every means of diagnosis has been resorted to, I will suggest that when you are face to face with a serious optic nerve disturbance, the part of conservatism and good judgment requires an operative exploration of the ethmoidal and sphenoidal cells. I feel quite confident that visual disturbances are frequently the first suggestions of serious sinus disease, which may eventually lead to blindness or to death. It is only fair, then, to heed the warning and eradicate the disease before it has impaired function or destroyed life.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. ELLETT AND BORDLEY

DR. GEORGE DE SCHWEINITZ, Philadelphia: The scotomas which Nettleship termed chiasmal amblyopia seem to be associated with disease of the sphenoid, rather than with posterior ethmoiditis. The scotomas may be typically hemianopic, as they often are in pituitary gland disease. Such scotomas may be produced by disease of the sphenoid, but not necessarily so. And if found, it is not necessarily the sphenoid which is involved. Ring scotomas, sometimes of temporary duration, and not later assuming a different shape, and sometimes gradually involving the whole central area, indicate an original involvement of the peripapillary bundle, and later of the central fibers. The paracentral scotoma may assume a crescentric shape and is not continuous with the blind spot. Such scotomas may be the first manifestation of a zonular defect, or the remnant of a circular scotoma which has disappeared in part, depending on the period in the cycle of development or subsidence at which they are examined. We may conclude that central and paracentral scotomas may, and often do, interpret sinus disease, especially of the ethmoid or sphenoid, but such scotomas have no localizing value, that is, their form and position do not definitely indicate which sinus should be accused, except, possibly, that hemianopic scotomas are suggestive of disease of the sphenoid sinus. Acute retrobulbar neuritis may be an ocular manifestation of sinus disease, and relief and cure are prompt if an early elimination of the sinus affection is possible. Chronic retrobulbar neuritis may indicate the future onset of disseminated sclerosis. Facial palsy *ex frigore* is probably an infection, favored by the action of cold in reducing the resistance of the facial nerve; if the fluid exudate in the fallopian canal persists long enough, parenchymatous neuritis develops. If the pressure on the optic canal and venous stasis should last long enough, it is fair to assume that swelling and proliferation of the glia cells and destruction of the nerve fibers would develop. In focal infections bacteria find favorable opportunities for growth, multiplication and entrance into the lymphatic stream by being carried in by migratory leukocytes acting as phagocytes. Having gained access to the blood stream, they may be able to resist the bactericidal action of the blood by reason of reduction in the resistance of the blood due to the primary infection, and subsequently locate in the uveal tract or in a joint, either because of special affinity for these parts or because the resistance of these parts is reduced. Is it not permissible to include the optic nerve in this category?

DR. LEE M. FRANCIS, Buffalo: The intimate relationship between disease of the accessory air passages and optic nerve disease cannot be too strongly or frequently emphasized. From an anatomic standpoint, factors other than circulatory changes and thin walls separating sinus and nerve are to be considered, such as dehiscence and diverticuli. In 9 per cent. of the 100 specimens examined and reported on by Dr. Gibson and me, diverticuli were found, some of such size and so placed as to admit of some difficulty in

attack and drainage. Except for roentgenograms, a study of the visual fields is the most valuable aid in differential diagnosis. An enlarged blind spot, along with central scotoma, should throw strong suspicion on the sphenoids. In the absence of any other definite cause of optic neuritis, I believe an exploratory operation on the sinus is justifiable.

DR. WILLIAM C. POSEY, Philadelphia: The involvement of the optic nerve as a consequence of ethmoidal or sphenoidal sinusitis, may vary in degree from a simple edema to an active retrobulbar inflammation. While this latter inflammation is rare, even in cases of marked sinusitis, edematous infiltration is common, although the change wrought in the nerve is slight, and the symptoms which it excites are not striking, therefore it must be searched for with some care. As a rule, the patient complains of some dimness of vision in one eye, at times of vertigo, headache and other head symptoms. When the ophthalmoscope is employed, the unaffected eye is usually found to be normal, while in the fellow eye a slight veiling of the edges of the nerve is seen, with a dilatation of the retinal veins and a choking of the lymphatics around the central vessels. If the sinusitis is unchecked and the retention of the contents of the cavity occurs, the nerve becomes more involved and the familiar signs of a retrobulbar inflammation of the nerve appear.

In cases of even slight involvement of the optic nerve, the patient is usually conscious of a dimness in the affected eye, although if vision be tested in the ordinary manner it will be found normal for form. If the light on the chart is reduced, however, or if Bjerrum's test card is employed, the difference in vision between the two eyes will be manifest, and it will be ascertained that the dimness in the affected eye was occasioned by a diminution in the light sense, as a consequence of the edematous infiltration of the highly organized bundle of fibers which supply the macular region. I have not found enlargement of the blind spot in sinus disease as constant a symptom as some would have us believe. Edema of the lids is frequently encountered even in beginning cases of sinusitis usually most marked in the upper lid, and particularly on the nasal side. This edema is to be distinguished from the inflammatory swelling and thickness of the lid which results from cellulitis. It is entirely noninflammatory in origin as well as in appearance. The swelling is usually most marked in the morning and disappears during the day, but it is also apt to be brought on by bending the head forward. Inflammation of the frontal sinus appears to give rise to intracranial lesion the most frequently, the infection usually occurring as a consequence of perforation of its posterior wall with consecutive abscesses in the frontal lobe. The infection in ethmoiditis, which occurs through the lamina cribrosa, is rapid, and gives rise to general meningitis or frontal abscess. Meningitis and thrombosis of the cavernous sinus may be set up by sphenoiditis.

DR. HARRY S. GRADLE, Chicago: I agree with Dr. Bordley that pressure is one of the main factors in the production of retrobulbar neuritis from sinus disease. There are three types of pressure in the intracanicular portion of the nerve; pressure on the periphery of the nerve which causes enlargement of the blind spot; a pressure involving the entire crosssection of the nerve, causing complete blindness; pressure along the central vein of Vossius, causing central and paracentral scotomas. Dr. Bordley says that about 30 per cent. of cases of ethmoid and sphenoid disease show optic nerve involvement. If there is anterior drainage from the ethmoid and sphenoid, it is not likely that the disease will extend into the orbital space; it is when there is no nasal drainage that we find optic nerve involvement. The average instrument in use for examination of the blind spot will not give an adequate idea of the enlargement of the spot or of the presence of a central scotoma because it is used at too short a distance from the eye, consequently the blind spot is not projected far enough and is too small to be measured accurately. At least 60 cm. should be between the eye and the screen on which the scotoma or blind spot is to be projected. Furthermore, we may examine the blind spot or scotoma by bringing the test object in from the periphery until the blind spot is reached, or we may start in the center of the blind spot and bring the test object outward until the seeing areas are reached. This will cause a marked difference in the size of the scotoma as it is projected. There is a retinal drag, and if the test object is brought from the periphery toward the blind spot, the blind spot will be considerably smaller (from one to three degrees) than if the test object is brought from the center of the blind spot toward the periphery.

DR. S. G. HIGGINS, Milwaukee: The operation is not comparable to opening a pus sac following enucleation of an eye, or to an operation on the appendix or tonsils. After the operation, the patient should be seen frequently, should be under your care and be treated for days or weeks to get the proper healing of the nasal membrane. In a case in which I found the nose negative, but the first stage of choked disk developing, a venesection was done, iodids were given and active sweats were induced. After two weeks the condition began to clear up. Had I operated I might have been able to contribute another case to those reported today.

DR. HIRAM WOODS, Baltimore: A young man, 23 years of age, who previously had had good health, except for headache, enlisted in the navy and was subject to a good deal of exposure in his daily work. One morning he found his sight defective. When I saw him two or three weeks later he had about $^{20}/_{100}$ vision. I could find no cause and he was subjected to thorough clinical examination. Dr. Crowe examined the sinuses and gave a negative report; but believing the case serious, explored the sinuses and confirmed his former report. I had found a paracentral scotoma. The young man was discharged from the service and went back to his ordinary life. About three months later he returned with the scotoma much smaller and vision $^{20}/_{30}$. What did that exploratory operation have to do with his improvement? I do not know, nor do I know what other cause there could have been except this. This case may fall into the class Dr. Bordley mentioned: a delayed recovery, or in the class alluded to by Dr. de Schweinitz—the people who catch cold with subsequent swelling which produces retrobulbar neuritis.

DR. HAROLD BAILEY, Springfield, Mo.: I think that one reason why these patients consult the nose man so infrequently is the fact that when a patient has failing vision he consults the optician. Some noses are very easy to examine and the first examination will reveal the presence of sinus infection. On the other hand, other noses are very hard to examine, and in some noses it is impossible to detect whether there is sinus infection or not. Again, in some cases repeated examinations must be made before evidence is found on which to base a diagnosis. Transillumination is a very valuable aid in diagnosing sinus infection. Roentgenograms are a help, but they are not infallible. If we cannot depend on the roentgenograms to show bony partitions between the sinuses, obviously we cannot depend on them to show slight infection within the sinus itself. Infection of the sinus need not necessarily be present to cause this eye condition. A mucocele in the posterior ethmoidal cell may produce the same amount of pressure and pain. Or a cyst may be found in a cell. Dr. de Schweinitz spoke of the justifiability of exploring the sinuses in cases in which no sinus disease is found. The only way one can make a thorough and complete exploration of all of these cells is to clean out every one. In the case which Dr. Ellett mentioned removing part of the turbinate, if I had done that operation I would have always had the feeling that some fragment of an ethmoid or sphenoid cell had been overlooked, unless I had cleaned out all the cells.

DR. H. B. LEMERE, Omaha: Dr. Ellett demonstrated that antrum disease can be responsible for eye conditions. Heretofore, we have been rather prone to look to the ethmoid and sphenoid in connection with eye conditions. Dr. Bordley makes the point that all these cases are not pus cases, that many are so-called hyperplastic cases. Latent antrum trouble is very important in any inflammatory eye condition and should be taken into consideration. The antrum is the largest accessory nasal cavity and from the position of its ostium is more liable to poor drainage and chronic infection than the frontal, the sphenoid or the ethmoid. I have observed iritis, keratitis and third nerve palsy associated with a chronic

disease of the mucous membrane of the antrum often implicating its bony walls. This chronic infection is often accompanied by pus retention unless stirred up by a superimposed acute infection. The symptoms of this latent antrum disease are a reddened streak on the posterior pharynx showing infection descending from the posterior nares, a swollen anterior extremity of the middle turbinate often covered by a dried scab; often a glairy, transparent, sticky secretion from the nose of a peculiar, disagreeable odor.

DR. HERBERT MOULTON, Fort Smith, Ark.: About fifteen years ago I saw a young man, about 20 years of age, who had been suffering for four or five days with intense headache on the right side, extending into the occiput and vertex. During this time vision in the right eye had been failing, and when I saw him he had not even light perception. Ophthalmic examination did not show any lesion whatever in the fundus, and such examination of the nose as we could make at his home revealed nothing of interest in his nose. That night there was a spontaneous discharge of pus from his right nostril which relieved his headache very much, and during the next week or ten days his vision gradually was restored to normal, and remained so. Undoubtedly it was a case in which there was pus in one of the posterior cells of the ethmoid or sphenoid producing pressure on the canicular portion of the optic nerve.

DR. NELSON M. BLACK, Milwaukee: An additional symptom which occurs early in the case of eye involvement in sinus disease is the apparent if not actual loss of accommodative power which occurs often before the perimeter has shown a scotoma and before there has been any noticeable loss of vision. The unaffected eye has its normal accommodative power and print can be read at 35 cm., while with the affected eye the test object has to be carried to a greater distance before the print is sharp and clear.

RESULTS OF TESTS IN HAY-FEVER AND ASTHMA *

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During the fiscal year 1919-1920 ending July 15, thirty-two patients were tested for skin sensitiveness in the hay-fever and asthma clinic to determine whether their symptoms were due to anaphylaxis from epidermal, bacterial or food proteins. During this period also forty-eight patients were tested with pollens to determine whether their symptoms were due to sensitiveness to these vegetable bodies.

There were 2,105 skin tests performed on the thirty-two aforementioned patients, and the average number of tests per patient was a little over sixty-five. In the epidermal group, twelve were found positive and 220 negative. In the bacterial group three were found positive and 119 negative. In the food group, forty-eight were found positive and 1,482 negative. In the epidermal group there were two positive to chicken feathers, three to dog hair, two to goose feathers, two to horse dander, two to horse dandruff and one to sheep wool. In the bacterial group there was one to *Bacillus coli-communis*, one to *Streptococcus hemolyticus*, and one to *Staphylococcus albus*. In the food group there was one positive to beef, one to bluefish, one to casein, one to chicken, one to haddock, one to lobster, one to lactalbumin, one to perch, one to pike, one to turkey, one to almond, two to barley, one to bean, one to Brazil nut, one to buckwheat, one to cabbage, one to cauliflower, one to oat, one to coffee, one to corn, two to lentil, one to lettuce, one to lima bean, two to mustard, one to peanut, one to pecan, two to potato, two to sweet potato, two to parsnip, one to raspberry, one to rice, one to rye, one to spinach, three to tomato, three to wheat, two to wheat glutenin and one to wheat proteose. Among all of these tests many doubtful reactions occur, which for the purpose of accurate statistics are considered here negative. However, some of these doubtful reactions have a very decided significance, as will be shown later in the report.

In the pollen group, two were found positive to tag alder, two to oat, four to goldenrod, fourteen to ragweed, four to red top, two to plantain, three to timothy, six to yellow daisy, three to sheep sorrel, four to rye, and four to orchard grass.

There were nine cases tested with proteins that gave no positive reaction. Of these there were five in which there were infected ethmoids, and two that showed evidences of pyorrhea alveolaris. These cases, no doubt, may be placed in the category of asthmatic bronchitis with definite pathologic changes in the bronchi and peribronchial tissues.

There were nine cases of multiple sensitiveness to food proteins, six cases of multiple sensitiveness to pollens, and two cases of multiple sensitiveness to epidermal proteins; one case of combined epidermal and bacterial sensitiveness, six of epidermal and food, two of epidermal and pollens, two of bacterial and food, one of food and pollen, one of epidermal, bacterial and food, and one of epidermal, food proteins and pollens.

The sputum was examined bacteriologically in seventeen cases; pneumococcus Type IV was found once; *Micrococcus catarrhalis*, twice; *Staphylococcus albus*, nine times; *Staphylococcus aureus*, three times; *Bacillus diphtheroideus* (hoffmani), once; influenza bacillus, five times; *Bacillus mucosus-capsulatus*, twice; *Streptococcus viridans*, three times, and *Streptococcus nonhemolyticus*, once.

Cultures from the teeth were made in seven cases; *Streptococcus viridans* was found three times; *Streptococcus nonhemolyticus*, once; *Streptococcus hemolyticus*, once; *Staphylococcus albus* and *Staphylococcus aureus*, once. Cultures were made from the tonsil in one case; *Staphylococcus aureus* and *Streptococcus nonhemolyticus* were recovered. Cultures of the stool were taken nineteen times; *Bacillus coli-communis* was found in all; pneumococcus Type IV, once; *Staphylococcus albus*, three times; *Bacillus diphtheroideus* (hoffmani), once; the paratyphoid A bacillus, once; gram-positive unidentified coccus, once; *Bacillus fecalis*, once; *Streptococcus nonhemolyticus*, twice.

Heavy suspensions of organisms isolated in all these cultures were used for testing patients for autogenous skin sensitiveness to the organisms, and the results were: *Streptococcus nonhemolyticus*, eight negative and two positive; *Streptococcus hemolyticus*, one negative; *Streptococcus viridans*, four negative, two positive; *Micrococcus tetragenus*, one negative; *Staphylococcus albus*, two negative, one doubtful, five positive; *Staphylococcus aureus*, three negative, one positive; *Bacillus coli-communis*, sixteen negative, one doubtful, one positive; paratyphoid A bacillus, one negative; *Bacillus diphtheroideus* (hoffmani), one negative; *Bacillus mucosus-capsulatus*, one negative, one doubtful.

Doubtful reactions were disregarded if they occurred from some unimportant substance. If from an impor-

* Report of the Hay-Fever and Asthma Clinic, Department of Laryngology, University and Bellevue Medical College, July, 1919-July, 1920.

tant substance, they were usually repeated; and if the reaction persisted, the substance was excluded from the diet, if it was a food. If it occurred from an epidermal protein, it was not considered except when it was elicited by chicken or goose feathers. In the latter instance, sleeping in a feather bed or on feather pillows was interdicted. If the reaction persistently recurred from a bacterial protein, a vaccine was given and infected areas looked for and eradicated if possible. Doubtful reactions from pollens were disregarded.

The importance of doubtful reactions is illustrated by this brief history of a case: A patient who smoked and chewed tobacco complained of persistent sneezing. He was found doubtfully sensitive to tobacco. After he stopped using tobacco, his annoying symptom ceased.

Twelve patients were treated with autogenous vaccines.

Of twenty-two patients, nine were found to have deviated septums; two had pyorrhea alveolaris; six, double chronic ethmoiditis; one, pus in the left antrum; two, follicular pharyngitis and hypertrophied tonsils. Most of the patients that had nasal or throat diseases were operated on. In addition, each of two patients suffering with asthmatic bronchitis were examined bronchoscopically several times.

Five patients who had definite infections of their ethmoid tracts were found sensitive to some food protein or bacteria, or a combination of both.

It is very difficult to give exact data relative to the result of treatment in clinic patients, because of the irregularity of their attendance and their frequent change of address. However, we definitely know that of thirty-one patients suffering with bronchial asthma, examined and treated, fifteen were definitely improved, most of them having no symptoms. The sixteen remaining patients we are considering not improved, although a few of them show definite signs of getting well; but because of the fact that they still have symptoms, we are placing them in this category.

814 West End Avenue.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

SODIUM ARSPHENAMINE.—Sodium Arsenphenolamine. The sodium salt of 3-diamino-4-dihydroxy-1-arsenobenzene, $NaO.NH_2C_6H_2As:As.C_6H_2NH_2ONa$, with a stabilizing medium. The arsenic content of 3 parts sodium arsphenamine is equivalent to 2 parts of arsphenamine.

Actions and Uses.—Sodium arsphenamine has the same actions and uses as those of arsphenamine; its advantage over arsphenamine is that it does not require addition of alkali before use.

Dosage.—From 0.45 Gm. to 0.9 Gm. for adults. As 3 parts sodium arsphenamine is equivalent to 2 parts arsphenamine, the amount of drug to be administered should be 50 per cent. more than arsphenamine under the same conditions. In preparing the solution for injection, the sodium arsphenamine must be dissolved immediately after opening the ampule and avoiding anything but gently shaking in effecting solution. The quantity of sterile distilled water used for solution should be in the proportion of 20 Cc. for each 0.1 Gm. of the drug. Heating must be avoided in the preparation of the solution; any difficultly soluble preparation should not be employed. *The solution must be administered promptly.* See description under arsphenamine, N. & N. R., 1920, p. 38.

Sodium arsphenamine is a bright yellow powder, very unstable in air; when properly dried it is free from lumps. It is readily soluble in water, yielding an orange-yellow solution; the solution has an alkaline reaction (*distinction from arsphenamine*).

The addition of dilute sodium hydroxide test solution to 3 Cc. of an aqueous solution of sodium arsphenamine (1 to 500) produces no precipitate (*distinction from arsphenamine*). On the addition of 1 Cc. of sodium carbonate test solution to 1 Cc. of sodium arsphenamine solution (1 to 20) no precipitate is formed (*distinction from arsphenamine*). The addition of 1 Cc. of saturated sodium bicarbonate solution to 1 Cc. of sodium arsphenamine solution produces a precipitate.

One Cc. of an aqueous solution of sodium arsphenamine solution (1 to 20) when made acid (to phenolphthalein) with dilute hydrochloric acid yields a precipitate (*distinction from arsphenamine*). This precipitate dissolves on the very careful addition of more acid; on heating no irritating odor of sulphur dioxid should be detected (*distinction from neoarsphenamine*). [However, an excess of hydrochloric acid, or the concentrated acid yields a precipitate.] The careful addition of 3 Cc. of acetic acid test solution to 3 Cc. of sodium arsphenamine solution (1-20) produces a precipitate (*distinction from arsphenamine*). When 3 Cc. of sodium arsphenamine solution (1 to 20) is heated with a few crystals of potassium permanganate (without addition of alkali; *distinction from arsphenamine*), the permanganate is reduced and ammonia is evolved which may be tested for by placing a moistened piece of red litmus paper in the vapors; the litmus paper will turn blue. The addition of 1 Cc. of trinitrophenol (picric acid) test solution to 1 Cc. of sodium arsphenamine solution (1-500) produces a yellow precipitate (*distinction from neoarsphenamine*). The addition of 1 drop of ferric chlorid test solution to 1 Cc. of sodium arsphenamine solution (1 to 500) produces a brownish-violet color, which changes gradually to red, the liquid finally becoming turbid; if a more concentrated solution of sodium arsphenamine (i. e., 1 to 20) is employed, an immediate precipitate is formed. The careful addition, drop by drop, of bromine water to 1 Cc. of sodium arsphenamine solution produces a red solution the color of which is discharged by an excess of the reagent. To 1 Cc. of sodium arsphenamine solution (1 to 500) is added 1 Cc. of dilute nitric acid and 1 Cc. of silver nitrate test solution; a dark yellow precipitate is formed which becomes black; the black precipitate is dissolved by warming with an equal volume of concentrated nitric acid, generally leaving a white precipitate (any precipitate which may remain is due probably to the use of sodium chlorid with which the pure sodium arsphenamine is mixed). The addition of 1 Cc. of concentrated nitric acid drop by drop to 1 Cc. of sodium arsphenamine (1-500) forms a momentary precipitate which quickly dissolves, forming a red solution; when a more concentrated solution of sodium arsphenamine (1-20) is used, the addition of the nitric acid first causes a yellowish-white precipitate which dissolves in an excess of the acid yielding a dark red solution. The arsenic content of sodium arsphenamine may be estimated according to the Lehman method in the Public Health Reports 33; 1003 (June 21) 1918. The total arsenic content of the drug shall not be below 19 per cent. or above 21 per cent.

To determine the toxicity, select not less than five healthy albino rats weighing between 100-150 grams (pregnant animals shall not be used), prepare a 2 per cent. solution and inject the solution into the saphenous vein of each rat at the rate of not more than 0.5 Cc. per minute. The rats shall not be anesthetized for the injection. At least 60 per cent. of the series of animals injected with the maximum tolerated dose should survive forty-eight hours from the time of injection; the maximum tolerated dose shall not be below 0.18 Gm. per kilo body weight.

Sodium Diarsenol.—A brand of sodium arsphenamine.

Manufactured by the Diarsenol Laboratories, Inc., Buffalo, N. Y., under patents Nos. 1059983 and 1078135 by license of The Chemical Foundation, Inc. Also licensed for interstate sale by the U. S. Treasury Department under the "act to regulate the sale of viruses, serums, toxins and analagous products" as conforming to the regulations for the control, sale and manufacture of sodium arsphenamine; issued March 20, 1920.

Sodium Diarsenol 0.15 Gm. Ampules.—Each hermetically sealed ampule contains sodium diarsenol 0.15 Gm.
Sodium Diarsenol 0.3 Gm. Ampules.—Each hermetically sealed ampule contains sodium diarsenol 0.3 Gm.
Sodium Diarsenol 0.45 Gm. Ampules.—Each hermetically sealed ampule contains sodium diarsenol 0.45 Gm.
Sodium Diarsenol 0.6 Gm. Ampules.—Each hermetically sealed ampule contains sodium diarsenol 0.6 Gm.
Sodium Diarsenol 0.75 Gm. Ampules.—Each hermetically sealed ampule contains sodium diarsenol 0.75 Gm.
Sodium Diarsenol 0.9 Gm. Ampules.—Each hermetically sealed ampule contains sodium diarsenol 0.9 Gm.

DESICCATED CORPUS LUTEUM-ARMOUR (See New and Nonofficial Remedies, 1920, p. 203).

The following dosage form has been accepted:

Corpus Luteum Tablets-Armour 5 grains.—Each tablet contains desiccated corpus luteum-Armour 5 grains.

Ivy and Sumac Poisoning.—One of the surest and best methods of individual prophylaxis is the use of soap and hot water. It has been found that Rhus poison after being deposited on the skin requires a certain time for penetration, and if this penetration can be prevented, irritation and the resulting eruption will not occur. Hot water and soap act mechanically, and if used judiciously constitute by far not only the most serviceable preventive but also one of the best curative agents available. No specific treatment for Rhus poisoning is yet available.—*Pub. Health Rep.* **35**:453 (Feb. 27) 1920.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street - - - Chicago, Ill.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - - Five dollars per annum in advance

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SATURDAY, SEPTEMBER 18, 1920

CAN THE BODY SYNTHESIZE CHOLESTEROL?

It is not many decades since physiologists taught as the striking distinction between plants and animals that the former were preeminently synthetic organisms, whereas the latter were merely analytic or destructive in their chemical processes. The progress of biochemistry has demonstrated, however, that no such hard-and-fast distinctions hold in the domain of biology. All types of organisms seem to have in some degree the capacity both to build up new products and to make use of ready-made materials furnished to them. Nevertheless, there are important instances in which the ability of the animal structures to produce de novo some of their essential components seems to be wanting, so that they are dependent on extraneous sources of supply. This is well illustrated in the case of certain amino-acids, such as tryptophan, lysin and cystin. They are indispensable building stones or nutrient units in the structure of the animal, yet they cannot be synthesized by the latter.

Cholesterol is likewise a never-failing constituent of animal cells. Its universal presence there has led to the unwarranted conclusion that it must be manufactured in the tissues. There is no longer any doubt that cholesterol can be and actually is absorbed when it is present in sufficient quantity in the food. Plants contain sterols which are closely related chemically to cholesterol. It is therefore not impossible for the latter, which is present as a structural constituent of animal tissues, to be derived altogether from cholesterol and phytosterols, as the plant sterols are designated, contained in the food. In favor of this, the complex chemical character of cholesterol and the evidence that it is conserved to some extent within the organism by being reutilized after excretion in the bile have been adduced.

Cholesterol is present not merely in the bile, but also in the blood plasma and corpuscles. Furthermore, it exists in combination with fatty acids to form a sort of cholesterol (rather than glycerol) fats. The latter occur in the blood, and appear in increased concentration in certain pathologic tissue fluids. They also are present in the sebum, the secretion of the sebaceous glands, where they help to lubricate the skin and hairs and thereby serve a protective purpose in the animal economy. These significant facts are perhaps sufficient to warrant careful consideration of the origin of cholesterol and its compounds in the body.

Interesting evidence has lately been furnished by Gamble and Blackfan.[1] It may be assumed that if synthesis of body constituents occurs, it should appear in the case of growing organisms like infants. Hence the relation of the preformed cholesterol in the food to the total metabolism of this compound was studied by comparing carefully the intake and excretion of cholesterol. It was assumed by Gamble and Blackfan that the finding of a regularly positive balance in favor of cholesterol intake in the case of normal infants who were gaining in weight on usual diets could be taken as evidence that the cholesterol of the tissues is probably altogether derived from the preformed cholesterol in the food, whereas a regularly negative balance under the same conditions would quite definitely indicate a synthesis of cholesterol within the organism. The trials on the infants gave concordant answers. In all of them a much larger excretion than intake was found, the quantity of cholesterol in the stools being from two to three times that which was furnished by the diet. Gamble and Blackfan remark that if cholesterol metabolism is entirely dependent on an intake of preformed cholesterol in the food, it is very difficult to understand how the infants whom they studied managed to gain in weight and present no symptoms of disturbed nutritional processes while exhibiting a large negative cholesterol balance. A skeptical critic might reply that the periods of observation, three days, were rather short to permit a final conclusion, especially if the young have liberal stores of the lipoid in their bodies. However, the Baltimore investigators have not hesitated to interpret the results as indicative of a synthesis of cholesterol within the growing organism.

KIDNEY PATHOLOGY AND RENAL FUNCTION

The last few years have been decidedly fruitful in the production of new methods for the study of renal function. To the long practiced examination of the urine for abnormal constituents associated with kidney disorder there have been added the so-called functional tests and, more recently, the careful chemical analysis of the blood for evidence of retained catabolites. The time has arrived when it seems profitable to correlate observations made by the newer technic with the findings of the pathologic histologist and the clinician observing symptoms at the bedside.

The existence of two distinctly different morphologic structures—the glomerulus and the tubular epithelium—in the kidney has long furnished a problem for both the physiologist and the pathologist. Precisely what

1. Gamble, J. L., and Blackfan, K. D. Evidence Indicating a Synthesis of Cholesterol by Infants, J. Biol. Chem. 42:401 (July) 1920.

is the special function of each part of the renal mechanism, and which is concerned primarily in certain types of kidney disorder? It has required a correlation of anatomic and functional investigations to promote progress in the solution of such questions. The outcome of the exceptionally extensive studies in this field by MacNider [1] tends to minimize the importance of the glomerulus as a functional unit and to emphasize the relative importance of the tubular epithelium. They show that, in cases in which chronic injury to the kidney has consisted in a glomerulonephropathy with histologically well preserved tubular epithelium, the elimination of phenolsulphonephthalein, used as an index of functional capacity, may be only slightly reduced, and there may be no retention of blood urea and creatinin. MacNider has ascertained, on the other hand, that when an acute tubular injury is superimposed on the chronic glomerular defect, the outcome is quite different. A rapid reduction in the elimination of phenolsulphonephthalein and a retention of catabolites in the blood is then likely to occur. It is under these conditions that animals in which the desired lesions can now be specifically produced become acutely anuric and die in convulsions or in a coma which may not be preceded by convulsions.

Acute tubular injury, such as can be produced experimentally by certain drugs like salts of uranium or mercury, may be followed by a recovery from the immediate difficulty with the subsequent development of a chronic nephropathy. During this change there is a regeneration of tubular epithelium of a flattened and less specialized type, and chronic obliterative and sclerotic changes in the glomeruli. With the institution of these, the elimination of phenolsulphonephthalein in functional tests improves, and the undesirable retention of urea and creatinin in the blood decreases.

Such facts as these, acquired by specially designed experiments on animals, have fostered the inference that the tubular epithelium is of greater significance in maintaining a normal acid-base equilibrium of the blood, and is more concerned with the elimination of phenolsulphonephthalein, urea and creatinin than is the vascular mechanism of the kidney. In the naturally acquired nephropathies, both in animals and in man, the more common type of injury is one in which the glomerulus is damaged out of proportion to the degree of tubular injury.[2] The functional response of the kidney in this condition is characterized by a low phenolsulphonephthalein output and by the excretion of small amounts of protein. Casts are usually present, but retention of catabolites in the blood does not occur. Therefore—and this is of diagnostic significance—the pigment excretion test is of greater value in chronic vascular injury of the kidney than are the retention tests; in fact, the injury of the kidney, as indicated by the capacity to eliminate phenolsulphonephthalein, must be of severe type before kidney function becomes sufficiently impaired to indicate the injury by a retention of urea and creatinin.

It is worthy of note by those who are accustomed to rely on old-time urinary diagnostic tests that, according to MacNider's accurate estimates, the amount of protein in the urine is no index of the severity of the pathologic condition of the kidney or the degree of functional disturbance. He states that the quantitative output of protein may show a progressive decrease, easily mistaken for recovery, while at the same time the capacity for elimination of phenolsulphonephthalein is rapidly decreasing, and both urea and creatinin are showing a retention in the blood.

1. MacNider, W. deB. A Study of Renal Function and the Associated Disturbance in the Acid-Base Equilibrium of the Blood in Certain Experimental and Naturally Acquired Nephropathies, Arch. int. Med. 26:1 (July) 1920. The earlier papers of the author are cited in this article.

2. Stengel, Alfred; Austin, J. H., and Jonas, Leon: A Comparison of the Functional and Anatomic Findings in a Series of Cases of Renal Disease, Arch. Int. Med. 21:313 (March) 1918.

CLINICAL CALORIMETRY AS AN AID TO THERAPY

The value which clinical calorimetry, now brought within the range of ordinary hospital laboratory technic, is likely to gain in the study and practice of medicine in the immediate future has been referred to on several occasions in THE JOURNAL. To physiology the accurate estimation of metabolic changes—of the chemical transformations going on within the organism—has contributed the demonstration of the uniformity of these reactions under conditions of health. If the influence of food and muscular activity in the form of exercise is excluded, as is true when the body is at rest during a period long after a meal, the "basal" metabolism, or metabolic rate, will be found to exhibit a constancy for the individual and, in different persons, to be proportional to certain body units, of which the most commonly recognized is perhaps the surface area, which can be computed with a fair degree of accuracy from easily obtainable data.

To pathology, clinical calorimetry has shown the interrelation between certain diseases and the basal metabolic rate. Nowhere has this been more forcibly exhibited than in the disturbances of the thyroid function. Such facts as are at present ascertained give credence to the long entertained belief that the thyroid is, in truth, the chief "regulator of metabolism." What are clinically designated as states of hyperthyroidism and hypothyroidism are readily distinguished by the respective acceleration or depression of metabolism; and in the borderline cases the estimation of the basal metabolism of the patient has already furnished helpful diagnostic indications.

The progress in this field of research has now reached the stage at which therapy also may be expected to reap directly some of the advantages of

the scientific method. Snell, Ford and Rowntree[1] of the University of Minnesota Medical School, who are among the growing number of "specialists" in clinical calorimetry in this county, have recently indicated anew what such work means in evaluating the effects of drugs in disease. The uncertainty that attends the observation of superficial signs or such impressions as are designated "well-being" is dispelled when accurate measurement can be cited to illumine a debatable situation. The basal metabolic rate furnishes "an accurate index to the results of medical and surgical treatment" in many instances which the growing literature of the subject demonstrates. And, as Janney remarked at the New Orleans session of the American Medical Association, there is no more interesting proof of the value of pure research as applied to clinical medicine than the development of respiratory apparatus used in the estimation of basal metabolism.

CEREBRAL HEMORRHAGE IN THE NEW-BORN

The fallacy of post hoc ergo propter hoc has more than once led to fallacious conclusions in medical science. From recent observations this seems to have been the case in determining the etiologic factor in many instances of infantile cerebral hemorrhage. In the new-born, meningeal bleeding is surprisingly common. According to necropsy observations made at the New-Born Clinic of the University of Minnesota, more than half of the cases thus examined showed cerebral hemorrhage. As it has long been realized that this phenomenon in life may be the specific cause of such unfortunate symptoms as mental deficiency and spastic states,[2] the attempt to place the primary responsibility for this on obstetric technic is a serious matter.

At the New Orleans session of the American Medical Association, Rodda,[3] of Minneapolis, pointed out that cerebral hemorrhage may follow normal labors when least expected. What has not been realized sufficiently in the past is the extent of hemorrhagic disease in the new-born represented by delayed coagulation time and prolonged bleeding time of the blood. Rodda's investigations show that with his method[4] the blood at birth normally exhibits a coagulation time ranging from five to seven minutes; the average bleeding time, with Duke's method, is three and one-half minutes, with a normal range of from two to five minutes. Significantly, the prolongation during the first five days of life coincides with the incidence of hemorrhagic diseases and cerebral hemorrhage. Mild trauma is likely to induce the latter under such conditions, while severe injury easily brings about the massive hemorrhages that result in early death.

With the underlying facts thus established, a rational therapy can be sought. Babies who bleed without birth injury can be benefited enormously by subcutaneous injections of whole blood. In severe cases in which cerebral complications are involved, recourse should be had to surgical procedures, following the lead of Cushing,[5] who showed in 1905 that craniotomy can prevent the appearance of cerebral degeneration through removal of the clot. Early surgery must, in fact, be controlled by measurements of the coagulation time of the blood, and fresh blood must be used therapeutically, if indicated, before operative procedures are instituted. Rodda's advice is that the condition of the blood—coagulation time and bleeding time—should be determined in every new-born baby presenting unusual symptoms, pointing to cerebral trouble.

1. Snell, A. M.; Ford, Frances, and Rowntree, L. G.: Studies in Basal Metabolism, J. A. M. A. 75:515 (Aug. 21) 1920.
2. McNutt, L. J.: Double Infantile Spastic Hemiplegia, with the Report of a Case, Am. J. M. Sc. 89:58 (Jan.) 1885; Intracranial Hemorrhage in Children, New York M. J. 41:104, 1885.
3. Rodda, F. C.: The Coagulation Time of Blood in the New-Born, with Especial Reference to Cerebral Hemorrhage, J. A. M. A. 75:452 (Aug. 14) 1920.
4. Rodda, F. C.: Studies with a New Method for Determining the Coagulation Time of the Blood in the New-Born, Am. J. Dis. Child. 19:269 (April) 1920.

Current Comment

COMMERCIAL FOODS FOR DIABETICS

Seven years ago the Connecticut Agricultural Experiment Station, which has long been active in the food inspection work of this country, published a widely circulated report on the commercial diabetic food products available at that time.[6] This publication gave striking testimony as to the misleading character of many of the products being advertised and sold for the special use of diabetic patients. As most emphasis a decade or more ago was being placed on the reduction of the carbohydrate content of the diet of such persons, the Connecticut bulletin stressed this feature of the commercially recommended foods. The same laboratory has recently prepared a new report on diabetic foods.[7] More than 600 analyses are included in the compilation, some of them representing products only recently marketed, and likewise such preparations as washed bran, thrice-cooked and washed vegetables, artificial and modified milks, and other "novelties" of present-day diabetic dietary and cookery. The elaborate lists of analyses include not only the content of carbohydrates but also that of protein and fat, in view of the recognized necessity of taking into account all of the nutrients in any proper formulation of a regimen for the diabetic patient. There is no satisfactory definition of what a diabetic food is, nor is there any universal diabetic food. The value of accurate information regarding the make-up of such products as may find a special application in dietotherapy lies in the fact that it enables the clinician and the patient to proceed intelligently in the direction of diet planning with a view to tolerance of all the

5. Cushing, Harvey: Concerning Surgical Intervention for the Intracranial Hemorrhages of the New-Born, Am. J. M. Sc. 130:568, 1905.
6. Street, J. F., and Mendel, L. B.: Conn. Agr. Exp. Sta. Report, Part I, Sec. I, 1913.
7. Bailey, E. M.: Report of the Connecticut Agricultural Experiment Station, New Haven, Conn., on Food Products and Drugs, 1919, Part II, Diabetic Foods, Being Bulletin 220. The bulletin is mailed free to those who apply for it, as far as the edition permits.

nutrients. A federal regulation definition [8] states that "a diabetic food contains not more than one-half as much glycogenic carbohydrates as the normal food of the same class. Any statement on the label which gives the impression that any single food in unlimited quantity is suitable for the diabetic patient is false and misleading. If reliable information regarding the essential nutrients, fat, protein and carbohydrates were available, physicians could save themselves much "blind experiment" in efforts to ascertain a patient's tolerance. Among the items of interest in the Connecticut report are the studies of bran, which is being widely used at present to give bulk to the food residues in the alimentary tract. It appears that common, unwashed bran frequently contains no more than half as much starch as some of the advertised brands of "health" bran. Ordinary bran can readily be washed so that its content of starch is reduced to only 2 per cent. Further comment is unnecessary.

FAITH—AND WORKS

The best test of true faith is absolute confidence in one's belief. Apropos of this is the testimony given by Sir David Bruce at an annual meeting of the British Research Defense Society in 1910:

> When Sir David proved that the sleeping sickness, which had killed off 200,000 out of a population of 300,000, was due to the bite of the tsetse fly, and that the disease could easily be stopped by temporarily withdrawing the natives from the lake shore where the flies live, he called the Uganda chiefs together and asked for their help. They refused to believe the evidence and said the fly was harmless. I then said to Sir Apolo Kagwa, the Prime Minister, that if he did not believe that the fly carried sleeping sickness, he should go and sit among them under the shade of the trees on the lake shore in order to show every one the faith he had in the innocence of the fly. He answered: "God forbid."

The primitive savage was, however, willing to be shown—in fact, so willing that a few years later Sir David Bruce was able to say that not a single new case of sleeping sickness had been contracted in Uganda. The natives had learned to protect themselves against the tsetse fly. Faith, it is true, has healing powers, but the intelligent man is willing to concede the beneficial qualities of scientific work.

IMMUNITY FOLLOWING INFLUENZA

One of the debated points in connection with influenza concerns the duration of immunity following an attack. Some have claimed that influenza produces no immunity, others that it produces an immunity which is of brief duration, and still others that it confers a resistance to the disease which lasts over several years. Shortly after the 1920 epidemic subsided, the Surgeon-General's Office requested army surgeons to investigate the data available in army hospitals bearing on this point. The consolidated reports just published in the *Medico-Military Review*, issued by the Surgeon-General's Office, represent the conclusions in regard to 22,505 soldiers who were exposed to influenza during the 1920 epidemic and including 5,411 soldiers who had influenza during 1920. Of the 22,505 soldiers exposed, 3,397 had had influenza in 1918. Of these, 718 had a second attack of influenza in 1920. Thus, 24 per cent. of all who were exposed had influenza during 1920, and of those who had influenza, in 21 per cent. the attack was a recurrence. This approximate equality in percentage leads to the conclusion that if any immunity at all is conferred, the immunity is of only slight duration.

8. U. S. Dept. Agr. Food Inspection Decision 160.

R. O. T. C. UNITS IN MEDICAL SCHOOLS

The War Department has recently been authorized [1] to make much more satisfactory arrangements with medical schools by which medical corps units of the reserve officers' training corps may be instituted.[2] It is planned to establish units at ten Class A medical schools having an enrolment sufficient to make possible the voluntary enrolment of fifty male students in the unit at the beginning of their freshman year. Each school is to be provided with a regular army medical officer who will be known as professor of military science and tactics. The course consists of ninety hours a year of theoretical instruction in the lines particularly essential for medical officers. At the end of the freshman year the student has the opportunity of attending a six weeks' summer camp where outdoor drills and recreation are combined with lectures and instruction covering the duties of medical officers in the field. At the end of the sophomore year, the professor of military science, in cooperation with the head of the medical school, will select from among the military students those who are eligible to continue the course during the last two years. These advanced students will receive $16 a month throughout the junior and senior years and $30 a month and traveling expenses, board, quarters and medical care while they are in attendance at the six weeks' summer camp course following the junior year. Students who satisfactorily complete the course become eligible for commissions in the medical officers' reserve corps. Under these improved arrangements, this course provides a training for medical officers which should be attractive to a large number of medical students and, at the same time, should insure for the future a generous supply of well-trained medical officers.

1. This authority is granted by the Army Reorganization Act of June 4, 1920, modifying the National Defense Act of 1916.
2. See more detailed statement on page 824.

Function and Structure in Disease.—The margin of function and structure which each organ provides beyond that which is demanded by the bare necessity of bodily activity provides the field within which disease works. When this margin is cut down a point is reached at which the liver or the kidney or the lung or some other organ becomes inadequate. To interpret the functional value of diseased organs requires constant reference to the structural and functional development of the body. Pathologic problems are, in a sense, highly specialized, but again we can escape from empiricism in dealing with them only when we give them shape by relating them to general biology and the general study of the development and organization of the body, and of the origin and correlation of the various organs of which the body is composed. Pathology will be strengthened and simplified in its teaching if the biologist who gave the students their introduction to the general science also continues the teaching in relation to fundamental problems of pathology.—J. L. Smith, *Lancet*, July 10, 1920.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

CALIFORNIA

Unlicensed Practitioner Fined.—A report states that Augustine Levanzin of Los Angeles was recently found guilty of practicing medicine without a license, fined $500 and given a suspended sentence of eighty days.

Foreign Language Examinations Discontinued.—It is reported that because of trickery and deception alleged to have been practiced by certain foreign applicants for medical certificates, the State Board of Medical Examiners has decided to discontinue all foreign language examinations.

DISTRICT OF COLUMBIA

Hospital Film Released.—Activities at the Walter Reed Hospital, Washington, will shortly be shown in moving pictures through the efforts of the bureau of the Potomac division, American Red Cross. The film was taken in cooperation with Surg.-Gen. Merritte W. Ireland and shows the work at the hospital for the wounded soldiers from a physical, educational and recreational standpoint. Other films are to be released in the future.

ILLINOIS

County Sanatorium Being Built.—The Tazewell County Tuberculosis Sanitarium, 1 mile east of Mackinaw, is under construction.

Clinic at Mount Carmel.—A tuberculosis clinic was conducted at Red Cross Headquarters in Mount Carmel, August 27, by Dr. Russell E. Adkins, Springfield, director of surveys in Illinois. The clinic followed a tuberculosis survey which had just been completed in Wabash County by Miss Knevels.

Antialcohol Delegation Named.—The governor has named the following physicians to represent Illinois at the Fifteenth International Congress Against Alcohol: Drs. Frank B. Norbury, Springfield; George A. Zeller, Alton; George W. Mitchell, Peoria; William F. Grinstead, Cairo; Ralph T. Hinton, Elgin; Rachelle S. Yarros, Charles F. Read, Herman M. Adler and H. Louis Singer, Chicago; Miss Amelia Sears, Chicago; Miss Jane Addams, Chicago, and Prof. Henry B. Ward, University of Illinois, Urbana.

Chicago

New Schools for Crippled Children.—Two new schools for crippled children, one at Lincoln and Belmont avenues, and one at Colorado and South Tripp avenues, were opened, September 13.

Personal.—Dr. Kellogg Speed has returned from France. ——Dr. Peter C. Schenkelberger has returned after a six months' tour in Italy.——Dr. Harry Rand of the Iroquois Hospital staff was attacked, September 7, by a delirious typhoid patient, who attempted to shoot the physician. Fortunately, the cartridge failed to explode.

INDIANA

Florence Crittenton Home to Be Improved.—Immediate improvements are contemplated for the Florence Crittenton Home at Indianapolis, and the work will be pushed as rapidly as funds will warrant.

Research Society Elects Officers.—The Clinical Research Society of Indianapolis held its first annual meeting, September 3, and elected Dr. Murray N. Hadley, president; Dr. Charles E. Ferguson, vice president, and Dr. Homer G. Hamer, secretary.

Hospital Items.—The Wayne County Council has accepted an offer of $50,000 in liberty bonds to make improvements at the county tuberculosis society hospital.——Benton, Tippecanoe, Warren and White counties expect to hold a joint session in order to arrange for the establishment of a joint hospital for the four counties, to cost $250,000.

Sanatorium Not Insane Hospital.—The board of managers of the Marion Hospital announces that the institution is not to be used as an institution for the insane, but is to be a sanatorium provided with the best equipment and under the direction of the most competent nervous and mental specialists in the country, where men from the late war may receive treatment necessary to restore them to health and the possibility of a useful life.

Personal.—Dr. Frank L. Truitt, Indianapolis, is recovering from an appendectomy, recently performed.——Col. LaRue D. Carter and Lieut.-Col. Thomas B. Victor Keene, Indianapolis, have been placed in charge of the medical arrangements for the National Encampment of the Grand Army of the Republic to be held in Indianapolis the week of September 22.

IOWA

Government Leases State Institution.—The former state home for inebriates, Knoxville, has been leased by the United States government and will be remodeled and equipped as a hospital to accommodate former service men in the Middle West.

Personal.—Dr. Sara E. Foulks, Davenport, who has been engaged in postwar work in Albania for more than a year, has returned home.——Dr. Howard D. Fallows, New Hampton, has been placed in charge of the eye, ear, nose and throat department of the Park Hospital Clinic, Mason City.——A. E. Kepford has been appointed superintendent of the new state juvenile home, Toledo.

LOUISIANA

Personal.—Dr. Irving Hardesty, professor of anatomy in Tulane University, has been granted a leave of absence, which he will spend at the University of California.——Dr. James A. Tucker, Baton Rouge, has been named physician for the Louisiana State University, succeeding Dr. Charles McVea, deceased.——Dr. J. W. McGehee, Garyville, has been appointed to succeed Dr. Tucker, as attending physician to the state school for the deaf.

MAINE

Hotel Inspection.—The medical inspector of the state department of health has completed an inspection tour of the hotels along the coast of Maine from Kittery Point to Bar Harbor, during which 150 hotels were inspected and seventy certificates issued, each of which gives the hotel holding it a clean bill of health. Generally speaking, the summer hotels were found to be in good condition and adequately equipped for the accommodation of summer guests.

Tuberculosis Clinic.—The tuberculosis clinic for physicians which was recently held at the Central Maine Sanatorium, Fairfield, demonstrated a new and hitherto untried use for a sanatorium as an educational institution. No hospital or medical school has the facilities for the study of tuberculosis that the sanatorium possesses. It also brings physicians together from all parts of the state, interests them scientifically in new ideas, and discussion of their own experiences sends them home unified and better prepared to attack the tuberculosis problem as they meet it in their own practice.

MARYLAND

Personal.—Dr. Charles MacFie Campbell, assistant director of the Henry Phipps Psychiatric Clinic, Johns Hopkins Hospital, has severed his connection with the clinic to become professor of psychiatry at Harvard Medical School and director of the Boston Psychopathic Hospital. Dr. Campbell will assume his new duties, October 1.

Dental Clinic at Hebrew Hospital.—After a two years' agitation of the subject by physicians in charge of the Hebrew Hospital, Baltimore, a dental clinic has been established there and will be opened officially within a few days. The new clinic was made possible by a gift of $10,000 from Dr. Harry Adler, as a memorial to his parents. Dr. William Allen Etheridge will be in charge of the clinic, which will be used exclusively for diagnostic work among patients of the hospital and dispensary.

Appropriation for Pay of Colored Physicians and Nurses.—An appropriation of $1,900 to pay the salaries this year of four colored nurses and two colored physicians in the school inspection division of the Baltimore City Health Department has been made by the board of estimates from its contingent fund. The nurses and physicians who look after children in colored schools have been serving without pay since their appointment several months ago. The salaries of the nurses are for the period from September 1 to January 1, and those of the physicians from October 1 to January 1.

University of Maryland School Campaign Plans Drafted.—The $350,000 campaign for funds to carry out the extension

program of the University of Maryland Medical College was launched formally at a recent meeting of the regents and directors of the school. The meeting was held in the office of Dr. James M. H. Rowland, dean of the medical school. Plans for the drive, which will open October 2 and continue until October 12, were outlined at the session, over which Dr. Rowland presided. The building program calls for the erection of a maternity hospital and a nurses' home and training school.

Marine Hospital to Be Used as a Municipal Hospital.—The municipal hospital commission at a recent meeting in the office of Health Commissioner C. Hampson Jones recommended the acceptance of the offer made by the U. S. Public Health Service of the Marine Hospital on Remington Avenue for use as a city hospital at a nominal rent of $1 a year. The action of the commission will be laid before Mayor Broening. The hospital will be turned over to the city immediately after the signing of the lease. The wards are ready for the reception of patients. It is not believed that Baltimore City will expend any large sum of money in new equipment and improvements, unless the $750,000 hospital loan should be turned down by the voters in November. It will not become a permanent municipal hospital, and the understanding is that the government will reserve the right to take it back in the event it is needed. The hospital loan was discussed by the commission and a report and recommendation as to the features of the campaign for its approval will be made to the Baltimore City Medical Society.

MASSACHUSETTS

Given Military Funeral Honors.—The body of Capt. William W. Walcott, M. C., U. S. Army, Natick, who was attached to the One Hundred and First Engineers, and died in Paris, March 19, 1919, was returned to America and was interred with military honors in Delpark Cemetery, Natick, August 16.

Personal.—Dr. Albert S. Hyman, resident physician at the Long Island Hospital, has resigned to become superintendent of the Mount Sinai Hospital, Philadelphia, and has been succeeded by Dr. Albert B. Murphy, Boston.——Major Richard A. Strong, chief medical director of the League of Red Cross Societies, Boston, has been elected an honorary member of the Serbian Medical Society.

NEW YORK

Addition to Sanatorium.—The board of managers of the Suffolk Sanitarium, Riverhead, has awarded the contract for an addition, to cost $65,300.

Personal.—Dr. Daniel E. Pugh, Utica, has been constituted by the order of the county court, examiner of mental defects. ——Dr. Nathan E. Beardsley, Dunkirk, was the guest of honor, August 25, at a farewell dinner given by the members of the Dunkirk and Fredonia Medical Society. Dr. George E. Blackham, on behalf of Dr. Beardsley's colleagues, presented him with a wrist watch.

New Hospital for Nervous and Mental Cases.—Arrangements have been completed for the opening of Valhalla Neurological Hospital for the exclusive study and treatment of brain diseases. The new hospital is a philanthropic project started by King Solomon Hospital Association as a preventive against insanity. It will open on October 1. The applications of 100 free patients have been accepted. They will come from several state and private institutions in New York and Connecticut.

New York City

New Neurologic Hospital.—Arrangements have been made for the opening of a neurologic hospital at Valhalla, Westchester County. The institution will be known as the Valhalla Neurological Hospital, and will coordinate under one roof surgical, medical and mental treatment of nervous and mental diseases. A drive has been started to raise $500,000 for maintenance.

OHIO

Personal.—Dr. Austin C. Brant has been reelected first vice president of the Dueber Watch Case Manufacturing Company, Canton.——Dr. Walter A. Wilson, Cincinnati, has been appointed superintendent of the Central State Hospital, Lakeland, Ky.——Dr. F. C. Anderson, formerly assistant superintendent of the Ohio State Sanatorium, Mt. Vernon, was appointed superintendent of the institution August 30.——Dr. Charles R. Longsworth, Columbus, recently underwent operation at Grant Hospital for appendicitis and is reported to be convalescent.——Dr. Joseph O. Ransohoff, Cincinnati, who has been seriously ill at his summer home at Beverly Hills, Mass., is reported to be out of danger.

Course in Sex Education.—The University of Cincinnati has issued a special announcement of a new course dealing with sex education. The course will consist of lectures, assigned readings, discussions, reports, demonstrations and exhibits. In the first semester, the topics to be treated will be: aims and general significance; the need; present status; function of the home and other social institutions; biologic and physiologic background; reproduction, a life activity; elementary human embryology; physiology and hygiene of human reproduction; psychology of sex education; essential facts of bacteriology and preventive medicine; venereal diseases and their sociologic significance. In the second semester these topics will be studied: place of sex education in biology, general science, physiology and hygiene, home nursing, physical education, literature, sociology, psychology, appreciation of art and agriculture; the school's responsibility outside the classroom; activities of the federal government, with special reference to the material prepared by the U. S. Public Health Service and the Interdepartmental Social Hygiene Board; the educational work accomplished by the American Social Hygiene Association, the Cincinnati Social Hygiene Society and other similar agencies; activities of state and city departments of health and education in the field of social hygiene; significant contributions of individual educators. The courses will be given by Mr. E. F. Van Buskirk, executive secretary and educational director of the Cincinnati Social Hygiene Society.

OKLAHOMA

Hospital Cornerstone Laid.—The laying of the cornerstone of the tuberculosis sanatorium for colored people took place at Boley on September 9. Dr. A. R. Lewis, state health commissioner, assisted in the exercises. The institution was established by the 1919 legislature, and $50,000 was appropriated for buildings and equipment.

PENNSYLVANIA

Outing for Physicians.—Physicians of the counties of Bucks, Berks, Chester, Delaware, Lehigh, Montgomery, Northampton and Philadelphia, joined in an outing at Willow Grove Park, September 2. The outing was a get-together meeting of the profession of that section of the state.

Journal Changes Address.—By direction of the board of directors of the Medical Society of the State of Pennsylvania, the journal of the society is to be printed in Harrisburg, beginning with the August issue. Dr. Frederick L. Van Sickle, executive secretary and editor, has opened an office at 212 North Third Street, Harrisburg.

Hospital to Be Erected.—The Robert H. Crozer Hospital, to be erected on the grounds of the Chester Hospital and deeded to that institution for ninety-nine years, will end a long series of conferences between the executors of the Crozer will and the managers of the Chester Hospital regarding a bequest by Mr. Crozer of $200,000 for the erection of a hospital in Upland or Chester, which bequest now amounts to $240,000.

Law Breakers Fined.—M. D. Greenfield, Charleroi, who is said to have been convicted of practicing drugless therapy without a certificate, appeared before the court August 23, and was sentenced to pay a fine of $25 and costs. It is said that Greenfield is a graduate of a chiropractic institution. ——For violating the quarantine law, Lewis McClain of Liberty Township, Adams County, was fined $50 and costs, August 21. The defendant took his son to a picnic when he was just recovering from diphtheria and a week before quarantine was lifted.

Personal.—Dr. David I. Miller, Harrisburg, has been appointed medical director for Dauphin County and head of the local tuberculosis clinic, succeeding Dr. Clarence R. Phillips, resigned.——Dr. J. Moore Campbell, Harrisburg, has been appointed acting chief medical director, succeeding Dr. Howard L. Hull, Camp Hill, resigned.——Dr. Israel Cleaver, Reading, has been chosen head of the Berks County Health Council.——Dr. Larry D. Sargent has been appointed chief of the state tuberculosis clinic at Washington.——Dr. D. C. Hollister has been appointed supervising dental hygienist of the state department of health and will have charge of the traveling dental clinics to be established in Pennsylvania under the auspices of the state government and the American Red Cross.——Dr. Jerome B. Rogers has been made super-

intendent and surgeon-in-chief of the Pottsville Hospital. Drs. Joseph L. Warne, Hamilton C. Wallace and Merchant C. Householder were elected surgeons; James B. Heller, John J. Moore and J. T. Moore, assistants; James S. Carpenter, physician, and George S. Corson and Percy R. Meikrantz, specialists.

Philadelphia

Personal.—Dr. Leman D. Cruice has been appointed physician in charge of the infirmary, correction farm and girl's home, Warrensville, Ohio, succeeding Dr. John McCleary, resigned to study tropical diseases in India.

TENNESSEE

City Hospital Makes Improvements.—The Knoxville General Hospital is to add the treatment of United States soldiers to its work; and for this purpose a new ward with accommodations for sixty patients is being completed at the institution. Soldiers who are taken ill in Knoxville or vicinity will be sent to the hospital and treated by the government staff of physicians. A large ward for the treatment of women patients is also nearly completed.

TEXAS

U. S. Hospital at Corpus Christi to Be Repaired.—The U. S. Public Health Hospital, formerly the Beach Hospital, damaged in the storm of last September, will be repaired at once.

New State Health Officer.—Dr. Oscar Davis, Anderson, has been appointed state health officer of Texas, succeeding Dr. Charles W. Goddard, resigned, to accept the position as chief of the medical staff of the University of Texas, Galveston.

Society Rejects Hospital Proposition.—The Denton County Medical Society has rejected the proposition presented by a promoting company to organize a hospital stock company for the purpose of building a hospital at Denton. It is understood that the medical society is unanimous in its desire to have a hospital and that it was only the form of the proposition which they rejected.

Bubonic Plague.—The fifth death from bubonic plague occurred at Beaumont, August 12. The cases thus far reported in Beaumont number twelve.——The first death in Houston from bubonic plague occurred in a local hospital, August 19.——The twelfth case and ninth death from bubonic plague in Galveston was reported, September 8. The patient was a woman, 79 years of age.

New Baptist Institution.—Construction work has been begun on the new building of the Baptist Memorial Sanatorium at Dallas. The building will have accommodations for 150 patients in addition to laboratory and operating rooms. A dispensary to take care of 300 or 400 patients daily will be erected as a part of the hospital. The estimated cost of the building is $800,000.

WISCONSIN

Personal.—Dr. Glenford L. Bellis, Wauwatosa, has resigned to accept the superintendency of the National Home for Disabled Volunteer Soldiers, Johnson City, Tenn.——Dr. Neil Andrews, Jr., Oshkosh, has returned after a trip to England and France.

Plans for Joint Sanatorium.—Plans are being made by the county boards of Dodge, Fond du Lac and Washington counties for a joint tuberculosis sanatorium which is to be erected in five units and will cost between $350,000 and $400,000. The sanatorium itself will accommodate 100 patients, and there will also be a residence for the physicians in charge, a nurses' home, a house for employees and a central heating plant. The buildings will be constructed of concrete, brick and steel.

CANADA

Personal.—Dr. Francis G. Wallbridge, Belleville, Ont., has been appointed medical officer of the Argyle Light Infantry.——Sir Kenneth Goadby, London, England, is in Toronto, the guest of Dr. Andrew J. McDonagh.

Staff Additions.—Queen's Medical College, Kingston, Ont., announces the following additions to its staff: Lorimer J. Austin, London, England, professor of clinical surgery; Dr. James Miller, Edinburgh University, professor of pathology.

French-Speaking Physicians at Quebec.—More than 400 French-speaking physicians of North America are gathering in convention in the city of Quebec, at Laval University. For ten years, largely on account of the World War, the association has been unable to meet in annual conference.

Physician for Korea.—Dr. O. R. Avison, president of Chosen Christian College and Severance Medical College, Seoul, Korea, is visiting Toronto where a quarter of a century ago he practiced medicine. His object is to secure twenty physicians and twenty nurses for hospital work, and for training native physicians and nurses in Korea.

Massachusetts-Halifax Health Commission.—Appointments to this commission are, as follows: Dr. Gordon Wiswell, in charge of Health Center No. 1 in the Old Admiralty House; Dr. Hugh W. Schwartz, physician in charge of nose and throat work, and Dr. M. J. Carney, in charge of one of the tuberculosis clinics. The consulting staff to cooperate with the executive officer, Dr. Royer, is composed of Col. John Stewart, Drs. Frank Woodbury, Arthur Birt, George M. Campbell, Samuel J. McLennan and R. Evatt Mathers.

A Clinic for the Well.—A medical clinic is being established at London, Ont., for those citizens and others who are well. This announcement was published on September 10, by Dr. H. W. Hill. It will be the first of its kind on this continent. He proposes to have well people come to the clinic for examination so that they may learn whether they are suffering from incipient disease, so as to secure treatment before it is too late. A moderate fee is to be charged for such examinations.

GENERAL

Millions for Red Cross.—Appropriations of $48,200,000 have been made for the American Red Cross relief program during the fiscal year, ended July 1, 1921. This total is $21,000,000 less than that appropriated last year.

Southern Physicians to Meet in Louisville.—The fourteenth annual meeting of the Southern Medical Association will be held in Louisville, Ky., November 15 to 18, with headquarters at the Hotel Seelbach under the presidency of Dr. Edward H. Cary, Dallas, Texas.

Colored Physicians Hold Meeting.—At the annual meeting of the National Medical Association of Negro Physicians, Surgeons, Dentists and Pharmacists, held in Atlanta, August 25 to 27, under the presidency of John P. Turner, Atlanta, Ga., Louisville, Ky., was selected as the next place of meeting, and Dr. Henry M. Green, Knoxville, Tenn., was elected president.

Red Cross Magazine to Suspend.—The executive committee of the American Red Cross has decided to discontinue the *Red Cross Magazine* with the October issue, on account of the increased cost of publication and especially of paper. The publishers stand ready to refund to those subscribers who will not receive the full number of issues to which they are entitled, the pro rata amount of their subscription.

Eighty-Ninth Division Surgeons to Meet.—The first annual meeting of the Eighty-Ninth Division Medical Association will be held in Kansas City, Mo., October 4, with headquarters at the Muehlbach Hotel, under the chairmanship of Dr. Reginald H. Meade, Kansas City. During the forenoon clinics will be held, and in the afternoon there will be a business meeting, and a banquet and entertainment in the evening.

To Improve Efficiency in Prohibition Director's Office.—The federal prohibition director at Chicago announces under date of September 1 that in order to prevent delay in the issuing of permits under Form 1410 undue privileges will not be given one firm over another, and that no forms will be certified beginning September 7, save those that reach the office of the director through the regular course of the United States mail. This rule has been made in order to prevent the delays due to unnecessary conversation and discussions when forms are presented for counter certification.

Cumberland Physicians Hold Meeting.—The seventeenth annual meeting of the Cumberland Valley Medical Association was held in Carlisle, Pa., September 2, under the presidency of Dr. David W. Van Camp, Plainfield, Pa. The following officers were elected: president, Dr. James B. Amberson, Waynesboro, Pa.; vice presidents, Drs. Samuel E. Mowery, Mechanicsburg, Pa., William D. Campbell, Hagerstown, Md., and Thomas H. Gilland, Greencastle, Pa.; secretary, Dr. John J. Coffman, Scotland, Pa. (reelected), and treasurer, Dr. John K. Gordon, Chambersburg, Pa.

Graduate Course in Public Health at Yale.—A graduate course in public health is being given by Yale University School of Medicine, which was first established in 1917. A one-year course leads to the certificate in public health (C.P.H.); and to medical graduates, only, a two-year course leads to the degree of Doctor of Public Health (Dr.P.H.).

These are required in both cases. The fees are $200 per year. The course extends from October to June. During 1919-1920, there were twenty instructors. Eight students were enrolled in June, 1920, and two certificates and two degrees were granted.

Tuberculosis Conferences.—The Southern Tuberculosis Conference will be held in Jacksonville, Fla., October 11 to 13. The Sunday before the meeting will be tuberculosis Sunday in the churches in which many of the delegates will speak on some phases of the general subject of tuberculosis.——North Atlantic Tuberculosis Conference will be held in Richmond, Va., October 7 and 8, with headquarters at the Jefferson Hotel. Capt. W. W. Baker, Chesterfield, Pa., will preside, and Dr. Roy K. Flannagan will be secretary. This meeting is held under the direction of the National Tuberculosis Association.

Safety Congress Meeting.—The ninth annual safety congress of the National Safety Council will be held in the Auditorium, Milwaukee, September 27 to October 1, under the presidency of C. R. Richards. The week from September 26 to October 2 is to be known as "No Accident Week" in Milwaukee. On the morning of the first day the annual meeting of members will be held, the afternoon session will be a public mass meeting, and moving pictures on safety will be exhibited. On the second morning there will be a general round-table discussion and meetings of the various sections. These section meetings will continue throughout the next three days.

Protection of Illegitimate Children.—Children born out of wedlock may receive protection of uniform laws. The National Conference of Commissioners on Uniform State Laws at its annual meeting held in St. Louis, August 19, adopted a resolution to include this subject in its program. At the present time, Minnesota affords a greater amount of protection to children born out of wedlock than does any other state. In most of the states, legislation for the protection of children of illegitimate birth is archaic. Following regional conferences held last February in Chicago and New York to consider standards which should govern legislation, a committee representing both conferences was appointed by the Children's Bureau of the United States Department of Labor to draft a memorandum embodying the principles agreed on in the resolution of the two conferences and to act in an advisory capacity to the bureau on this subject. A syllabus of propositions to serve as a basis for a program for illegitimacy legislation was drafted by Prof. Ernest Freund of Chicago and approved with certain amendments by the committee. This syllabus is included in a publication of the bureau now in press.

LATIN AMERICA

Casts Presented to Montevideo Medical School.—The *Anales de la Facultad de Medicina* of Montevideo relates that the Rio de Janeiro medical faculty have recently presented the Montevideo faculty with another set of handsome wax models, to supplement their previous gifts in this line. They were brought by Dr. Roquette Pinto, on his way to assume the chair of physiology in the Paraguay medical school.

Personal.—Prof. Isquieto Pérez, professor of therapeutics at Guayaquil, is on a scientific mission to study hospitals and medical schools in Rio de Janeiro.——Prof. A. de Castro of Rio has been elected to membership in the Société de neurologie of Paris.——Dr. Oswaldo Portugal of the S. Paulo medical school has been sent by the governor of the state to study the therapeutic application of radium in Paris, London and Berlin.——Dr. O. de Souza is likewise on a mission to Europe, as the delegate of the Rio medical faculty.——Prof. L. Ciampi, an Italian psychiatrist, has been called to Argentina to the training school for mentally backward children at Buenos Aires.——Dr. E. R. de Aragón of Havana is on a visit to the United States to study recent progress in surgery. He is the founder of the *Revista de Ginecología y Obstetricia*.——Dr. Paz Soldán, founder of the *Reforma Médica* of Lima, Peru, was entrusted with the drawing up of the sanitary code for the country, and his work has been accepted by the government as representing real progress.——Dr. Jaime H. Oliver having reached the age limit of retirement from the chair of surgical pathology at the Montevideo medical school has been appointed honorary professor.——Dr. J. Reenstierna of Stockholm, whose work on the combined serotherapy of gonorrhea was recently reviewed on page 578, is visiting in Rio.——Dr. H. J. Rosello, as exchange professor from Montevideo, has been lecturing in Buenos Aires.

FOREIGN

Personal.—Dr. J. T. Wilson has been elected dean of the faculty of medicine of the University of Sydney, Australia, succeeding the late Sir Thomas Anderson Stuart.

New Greek Medical Journal.—Dr. Pietri, director of the French Hospital at Athens, has founded a new journal, the *Iatrikos Typos*, to be the official organ of the hospital and of the Pasteur Institute.

Gift to Medical School.—The family of the late Sir John Darling of Adelaide, South Australia, has contributed the sum of $75,000 toward the cost of erecting a new building for the Medical School of the University of Adelaide to accommodate the departments of physiology, biology, chemistry, and histology and the medical library.

The Redard Prize.—Dr. P. Redard, a prominent orthopedic surgeon in France, who died not long ago, bequeathed to the Académie de médecine securities yielding an income of 1,000 francs which is to be awarded as a 5,000 franc prize every fifth year for the best work on orthopedic surgery. Competition is open to physicians of all countries and to interns in Paris hospitals.

New Research Laboratories Opened.—The new laboratories for research on the origin and treatment of tropical diseases, named after Sir Alfred Jones, Liverpool, were opened in Liverpool, July 24. Sir Alfred Jones took a great interest in the investigation of tropical diseases in Liverpool and made provision in his will for the erection of a laboratory and buildings in which the work may continue to be carried on with more ample facilities.

The Paolucci Fellowship.—The latest among the numerous tributes rendered to Dr. R. Paolucci for his daring exploit in planting a mine under the Austrian flag-ship in Pola harbor during the war, is the foundation of a Paolucci fellowship at the large school for orphans of physicians, located at Perugia. The subscriptions for this were from the medical societies of Italy, the *Ordini dei medici*. The *Policlinico* published the names of the individual subscribers, listing a number as "Lire 5, Illegible."

Kingsley Medal to Grassi.—The *Annali d'igiene* relates that the School of Tropical Medicine at Liverpool has conferred the Mary Kingsley medal on Prof. G. B. Grassi, the malariologist of Rome, for his research on the transmission of malaria by mosquitoes and the development of the hematozoa in the mosquito body. He is professor of comparative anatomy at the University of Rome and his earliest works date from the eighties. His work on the exclusive transmission of malaria by mosquitoes was published in 1900.

Congress of Hospital Physicians and Surgeons.—The physicians and surgeons connected with the hospitals of France have organized and arranged a general meeting at Paris, October 4 and 5, in connection with the national surgical congress. Three main topics are to be discussed, namely, how to keep the hospital service free for those unable to pay, and how to insure proper payment for those able to pay and those whose expenses are paid by outside organizations. Also ways and means for insurance against professional diseases and accidents of hospital origin.

Monument to Lombroso.—A committee was organized in 1910 to collect funds for a monument to Lombroso. The committee had concluded its task when the war broke out and the execution of the monument was deferred. The matter has been taken up again and it has been found that the funds collected are inadequate for the purpose now. So the committee appeals for more donations. They can be sent to Prof. Enrico Ferri at Rome or to the Director of the *Archivio di Antropologia criminale, Psichiatria e Medicina legale*, Care Editori Fratelli Bocca at Turin. The sculptor is at work on the monument which will be unveiled at Verona in the spring of 1921.

Deaths in Other Countries

Dr. **S. Eperon,** professor of ophthalmology at the University of Lausanne.——Dr. **F. Best,** privat-docent for experimental pathology at the University of Rostock.——Dr. **González Pellicer,** surgeon to the Spanish Hospital at Buenos Aires, aged 52.——Dr. **E. de Aragón y Muñoz,** a gynecologist and practitioner of Havana.——Dr. **M. A. Fernández Ibarra,** a Cuban physician long resident in New York, and author of numerous works on the history of medicine, etc.——Dr. **N. Saltone** of Las Piedras, Uruguay.——Dr. **V. A. Costa,** a Brazilian clinician residing in Lisbon.——Dr. **D. X. de Carvalho** of S. Luiz do Maranhão, Brazil.

Government Services

Appointment of Medical Officers

The War Department announces the appointment of the following emergency officers in the Medical Corps of the Regular Army; this is a partial list of the medical men who have qualified in the July, 1920, examinations for commissions in the Medical Corps; the names of other successful candidates will be printed in THE JOURNAL from time to time:

LIEUTENANT-COLONEL

Fielding H. Garrison, Army Medical Museum, Washington, D. C.

MAJORS

J. W. Bauman, Camp Dix, N. J.
C. A. Betts, Camp Grant, Ill.
J. C. Bowman, Camp Lee, Va.
Casper R. Byars, Fort Bliss, Tex.
A. M. Caccini, Mitchel Field, N. Y.
D. W. Cairns, Governors Island, N. Y.
D. R. Chase, Langley Field, Va.
J. F. Coupal, Army Medical Museum, Washington, D. C.
C. H. Dewey, Ft. Sam Houston, Tex.
C. E. Drake, Douglas, Ariz.
J. F. Duckworth, Ft. Crook, Neb.
Z. T. Henry, Nogales, Ariz.
C. L. Hoy, Camp Dodge, Ia.
A. D. Jackson, Camp Funston, Kan.
W. A. Murphy, Staten Island, N. Y.
R. K. Ogilvie, Denver, Colo.
J. F. Presnell, Staten Island, N. Y.
F. T. Robeson, Walter Reed Hospital, D. C.
W. S. Sharpe, Ft. Des Moines, Ia.
S. M. Strong, Long Island, N. Y.
J. W. Watts, Hot Springs, Ark.
W. E. Wilmerding, Camp Dodge, Ia.
F. E. Winter, Staten Island, N. Y.

CAPTAINS

J. P. Beeson, Ft. Sheridan, Ill.
J. H. Blackwell, Camp Pike, Ark.
S. E. Brown, San Antonio, Tex.
C. T. Buckner, Ft. Sill, Okla.
T. M. Chaney, Madison Barracks, N. Y.
H. S. Cole, Camp Upton, N. Y.
M. C. Crow, Camp Dodge, Ia.
M. B. Dunning, Ft. Sheridan, Ill.
J. C. Dye, Camp Dodge, Ia.
S. O. Elmore, Ft. Clark, Tex.
J. H. Evans, Staten Island, N. Y.
H. H. Fisher, Camp Dix, N. J.
A. M. Freels, Denison, Tex.
J. S. Gibson, Ft. Logan, Colo.
V. A. Harl, Camp Pike, Ark.
L. S. Harvey, Russell, Wyo.
J. E. Hewitt, Nogales, Ariz.
A. A. Hobbs, Ft. Leavenworth, Kan.
F. W. Hunter, Governors Island, N. Y.
H. W. Kennard, Aberdeen, Md.
W. B. Kenworthy, Camp Dix, N. J.
E. W. Kleinman, Camp Grant, Ill.
F. W. Lane, Cambridge, Ohio
L. A. Lavanture, Russell, Wyo.
A. A. McDaniel, Ft. Sam Houston, Tex.
P. J. McKenzie, Denver, Colo.
W. F. McLaughlin, Gen. Hosp. No. 41, Fox Hill, N. Y.
H. W. Mahon, Camp Dix, N. J.
L. G. Martin, Camp Gordon, Ga.
K. P. Mason, Camp Pike, Ark.
J. A. Matson, Denver, Colo.
L. A. Milne, Ft. Sill, Okla.
F. J. Moffatt, Camp Sherman, Ohio
C. D. Oakman, New Haven, Conn.
S. F. O'Day, Camp Upton, N. Y.
M. C. Pentz, Camp Sherman, Ohio
J. B. Powers, Garden City, Long Island, N. Y.
G. R. Randall, Ft. Sheridan, Ill.
T. H. Reagen, Camp Pike, Ark.
F. J. Rice, Camp Pike, Ark.
D. B. Roach, Jefferson Barracks, Mo.
H. E. Ruff, Camp Pike, Ark.
E. F. Shaffer, Camp Pike, Ark.
J. R. Shelton, Camp Funston, Kan.
L. D. Soper, Staten Island, N. Y.
C. B. Spruit, Camp Deven, Mass.
E. J. Strickler, Camp Pike, Ark.
E. M. P. Sward, Ft. Sam Houston, Tex.
M. H. Tindall, Ft. Bliss, Tex.
F. C. Venn, New York, N. Y.
E. H. Welcome, Camp Dodge, Ia.
G. D. Wells, Camp Pike, Ark.
G. B. West, Camp Pike, Ark.
Joseph H. Whiteley, Denver, Colo.
D. B. Williams, Denver, Colo.
J. Willis, Denver, Colo.
J. D. Woodworth, Hoboken, N. J.
Lucius F. Wright, Denver, Colo.

FIRST LIEUTENANTS

L. E. Beringer, Camp Custer, Mich.
M. C. Berry, Camp Pike, Ark.
P. C. Christian, Fort Bliss, Texas.
C. F. Davis, Ft. Sheridan, Ill.
E. M. Dings, Camp Dix, N. J.
B. Dodson, Camp Dix, N. J.
A. W. Drew, Ft. Sheridan, Ill.
L. I. Evans, McCook Field, Ohio.
J. J. Figueras, San Juan, P. R.
C. V. Hart, Plattsburg Barracks, N. Y.
L. C. Howe, Ft. Sheridan, Ill.
A. P. Kelly, Camp A. A. Humphreys, Va.
A. T. King, Governors Island, N. Y.
G. E. Lindow, Ft. Leavenworth, Kan.
R. Malcolm, Ft. Sheridan, Ill.
H. R. Melton, Ft. Sheridan, Ill.
W. H. Merriam, Ft. Leavenworth, Kan.
W. J. Joehe, Fort Niagagra, N. Y.
R. L. Peyton, Jefferson Barracks, Mo.
D. L. Robeson, Camp Custer, Mich.
N. Rosenberg, Camp Upton, N. Y.
O. F. Schiffl, Camp Grant, Ill.
C. Surren, Chicago.
F. W. Wiehe, Jefferson Barracks, Mo.

Reserve Officers' Training Corps Units in Medical Schools

The Army Reorganization Act of June 4, 1920, provides satisfactory conditions for the establishment of medical corps units of the Reserve Officers' Training Corps in medical schools. The medical corps units are to be established in ten Class A medical schools with a sufficient enrolment to meet the requirements of the present law, which stipulates that fifty physically fit male students shall enroll for the course immediately on entering their freshman year. To each of these medical schools a medical officer of the Army will be assigned as professor of military science and tactics. The course will consist of:

1. Theoretic instruction, covering ninety hours per annum, or a total of 360 hours, consisting of lectures and textbook studies in hygiene, sanitation and first aid, customs of the service, including history of the regular army, organization, military law, equipment of the soldier, etc.

2. Practical drill and field duties for six weeks, to be given at summer camps following the freshman year. Attendance at this course is voluntary. The student will live under field conditions, and will receive instruction in discipline, character and military bearing, the hygiene and preparation of food and the care of military camps, including the disposal of waste, detection and destruction of mosquitoes and flies, etc.

3. An advance practical course of six weeks in drill and field duties following the junior year based on the training previously obtained.

A detailed statement in regard to the courses of instruction and other essentials has been sent to the officers of all Class A medical schools.

Preparations for Respiratory Disease Control

The Surgeon-General of the Army is making preparations for the control of the diseases transmitted by discharges of the respiratory tract and the reduction of their mortality during the coming winter among American troops. Experiments carried on at the Army Medical School on animals indicate that the pneumococcus vaccine produces a considerable degree of protection for a short duration of two months. It is recommended to the Medical Corps, therefore, that this vaccine, which is given in three doses like the triple typhoid vaccine, be administered in the Army during the month of December. The pneumococcus vaccine is administered only on a voluntary basis to groups of soldiers who are willing to allow themselves to be vaccinated and observed as to the benefits arising from its use.

HONORABLE DISCHARGES, MEDICAL CORPS, U. S. ARMY

NOTE.—In the following list L. signifies lieutenant; C., captain; M., major; L. C., lieutenant colonel, and Col., colonel.

ALABAMA

Emelle—Boyd, A. F. J. (C.)
Ensley—Fonville, W. D. (M.)

CALIFORNIA

Los Angeles—Rene, J. A. (C.)
San Diego—Carter, R. S. (C.)
San Francisco—Haas, S. L. (C.)

FLORIDA

Nichols—Jobson, A. M. C. (C).
Tampa—MacRae, J. D. (M.)

GEORGIA

Auburn—Coffee, H. D. (L.)
August—McGarity, J. A. (L.)

ILLINOIS

Chicago—Challenger, C. J. (L.)
Lipshulch, G. U. (C.)
Malone, L. V. (L.)
Reed, T. (C.)
Sigworth, D. C. (L.)
Concord—Magill, A. O. (L.)
Hubbard Woods—Farmer, F. C. (L.)
Prophetstown—Winsett, C. V. (L.)

INDIANA

Fort Wayne—Carey, W. W. (C.)
Hammond—Greenleaf, G. F. (C.)
Indianapolis—Hutchins, F. F. (L. C.)
Kennard—Vandament, W. T. (L.)
Michigantown — Compton, C. B. (L.)

IOWA

Dubuque—White, E. H. (L.)
Onawa—Talboy, J. H. (C.)

KANSAS

Belle Plaine—Baker, R. E. (M.)
Winfield—Cave, F. G. (C.)

LOUISIANA

Bedford—Laughon, W. I. (L.)
New Orleans—Preis, E. B. (L.)

MASSACHUSETTS

Myricks—Randall, J. A. (L.)
Pittsfield—Stewart, H. M. (L.)

MICHIGAN

Ann Arbor—Langford, T. (M.)
Highland Park—Suggs, F. (M.)
Kalamazoo—Berry, J. F. (C.)
Richland—Kenzie, W. N. (M.)

MINNESOTA

Minneapolis—Carhart, W. G. (M.)

MISSISSIPPI

Meridian—Keen, O. F. (C.)

MISSOURI

Grand City—Tilton, W. B. (L.)

NEW JERSEY

Atlantic City—Corson, F. R. (M.)
Belleville—Elmore, W. T. (C.)
New Brunswick — Condon, W. J. (C.)

NEW MEXICO

Lakewood—Furay, E. S. (L.)

NEW YORK

Brooklyn—Krupp, D. D. (L.)
Pecini, A. (L.)
Buffalo—Fowler, R. G. (L.)
Hinds, R. W. (M.)
Lucas, W. C. (C.)
Kennedy—Batt, G. W. (C.)
New York—Hirsh, A. B. (C.)
Olcott, C. T. (C.)
Saratoga Springs — Brown, G. B. (M.)

NORTH DAKOTA

Grand Forks—Kittelson, O. (L.)

OHIO

Cincinnati—Kennedy, J. T. (L.)
Malvern—Rhiel, J. A. (M.)

OKLAHOMA

Fletcher—Ashley, J. (L.)

PENNSYLVANIA

Philadelphia—Myers, D. A. (L.)

SOUTH CAROLINA

Mauldin—Blakey, D. R. (C.)

TENNESSEE

Memphis—Mann, H. B. (L.)

TEXAS

Carlsbad—Gowen, C. R. (L.)
El Paso—McKnight, J. L. (L.)
Lockhart—Hewlett, L. L. (C.)
Malone—Roberts, L. C. (L.)
Palestine—Martin, C. P. (M.)
Pearsall—Brown, J. W. (L.)

VERMONT

Groton—Tillotson, H. L. (L.)

VIRGINIA

Vienna—Coumbe, A. G. (M.)

WISCONSIN

Chetek—Malcolm, J. J. (L.)
Wauwatosa — Gatterdam, E. A.

V. 19

MEDICAL OFFICERS, U. S. NAVY, RELIEVED FROM ACTIVE DUTY

CONNECTICUT
Middletown—Sweet, A. N.
ILLINOIS
Ladd—Moffett, R. A.
MASSACHUSETTS
Waltham—Ireland, A. G.
MISSOURI
Kansas City—Davis, J. J.
PENNSYLVANIA
Philadelphia—Hughes, F. L.
VIRGINIA
Norfolk—Sangmeister, H. J.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Aug. 21, 1920.

The Proprietary Medicines Bill

An important debate on the Proprietary Medicines Bill (described last week) took place in the House of Lords, where the bill passed through the committee stage. Lord Bledisloe expressed the hope that no attempt would be made to whittle down the important provisions of the measure. Never had such a tissue of fraud and falsehood been disclosed as was disclosed before the Select Committee of the House of Commons in regard to some of these proprietary preparations. Through advertisements in the press, deception was practiced on credulous and ignorant people. In no civilized country in the world was less protection afforded than in the United Kingdom against the class of medicine with which this bill dealt.

Lord Emmott moved to leave out the provision that the ingredients and composition of a proprietary medicine should be set forth on the proposed register of medicines and appliances. Such a provision might lead to the disclosure of the ingredients to a rival manufacturer. He moved to substitute instead a statutory declaration furnished to the register that the patent medicine was compounded of the ingredients mentioned in the declaration. In the opinion of the manufacturers of these medicines, some members of the medical profession were "out" to destroy their trade, with the incidental effect of increasing their own earnings. He, however, was not concerned with that quarrel. His desire was to see justice done to the public.

Replying for the government, Viscount Astor (parliamentary secretary to the Ministry of Health) resisted the amendment. It was vitally necessary that the ministry of health should know what "patent medicines" contained. He had too high an opinion of the civil service to believe that officials would give away the secrets. As for the suggestion that physicians would benefit from disclosures, the evidence given before the Select Committee showed that the profession stood to gain from the public's buying a large number of these "remedies," because afterward they would require more attention.

Lord Dawson of Penn (physician to the London Hospital) said that remedies were not to be judged suitable or unsuitable according to whether or not they were poisons. Many remedies which made for good in proper hands made for harm in unskilful hands. The practice that had arisen of adding to the scheduled poisons in the poisons act was wholly undesirable. That schedule contained many drugs, unfortunately, which were not poisons at all, and it produced an undesirable prejudice in the public mind to overstate the number of poisons. The fact was that knowledge tended to make the composition of drugs more and more precise, and thus their action became more accurately known and powerful for good and for evil—for good in the hands of people who knew, and for evil in the hands of those who did not. That was one reason why a wide discretion must be allowed to a government department. On the one hand, no injustice must be done to remedies which were either harmless or (as many of them were) useful; and, on the other hand, the public must be protected against remedies that were potentially evil. A "patent medicine" was not necessarily harmful per se, but it might have the effect of masking the early symptoms of serious and grave diseases, and thus the true investigation of the case was delayed until it was too late to do anything. He suggested, therefore, one criterion: whether a particular combination of drugs did by having this effect do such harm to the public as to require that the public should be protected. He did not wish to give needless examples, but malignant disease at once came to mind. It was quite easy to assuage the symptoms for six months and thus delay scientific diagnosis and treatment. Then, too, there were drugs exceedingly efficacious if properly handled, but dangerous in the hands of inexperienced people. Let them notice, for example, the group of anilin drugs, which was being extended every year. They were extraordinarily dangerous in the hands of people who did not know how to use them. Many of the simple headache powders in the hands of skilful persons were most efficacious; it was common to see people in collapse who used them without knowledge. So with the remedies for sleeplessness. He was not against proprietary medicines as such. It was only the public interest that should be the criterion to Parliament and to the profession to which he belonged.

Proposed Reform of Death Certification

A deputation from the British Medical Association and the Medical Parliamentary Committee was received by the minister of health and the home secretary. They expressed dissatisfaction with the present form of death certificate, which made it possible for a physician to certify death when he had no actual evidence that death had occurred. It was objectionable also that the certificate should be handed to the relatives of the deceased. The relatives were thereby informed of medical details which it was not necessary for them to know, and at times very inadvisable. This led to the employment of euphemisms by the certifier, thus diminishing the value of the statistical returns. The deputation suggested a dual certificate, one part stating the fact of death as given to the relatives, and the other, the cause of death, to be handed only to the proper authorities. To some extent this practice prevails in Ireland and also in Scotland, but there neither document is confidential. The only people who object to the suggested procedure are the insurance companies. Reform was also needed with regard to the registrar, the official whose certificate of registration is an authority for burial. This official was entitled, on information only, to give a certificate permitting burial. He could take a statement from any bonesetter, herbalist or other unqualified person, or, if he liked, he could accept the statement of relatives; and these wide discretions meant very unsatisfactory protection against crime or negligence.

The need for reform in the office of coroner was then brought forward. Originally, in cases of death, the coroner was not concerned with ascertaining whether there had been foul play; he had simply to discover whether the deceased person committed suicide. The work of coroners had now widened into the investigation of the cause of death, but in the absence of general direction their practice is widely different. Some coroners investigate publicly in great detail cases of death following accidents; others content themselves with private inquiries. The latter practice is parallel with that of the procurator-fiscal of Scotland. It was not clear whether the coroner was simply an officer of law, and belonged to the department of the home secretary, as he did technically, or whether he was an officer of public health and came under the Ministry of Health. If he were simply a

legal official, medical assessors would be necessary, to whom all documents and evidence must be referred. On the other hand, if it were recognized, as the deputation maintained, that his real business was a scientific investigation, the coroner became a most valuable official for inquiring into the cause of death, and passing on his information, if necessary, to the officers of the law. But the present procedure was a medieval anachronism. The coroner's court was public and full of sensations; his jury was uninstructed in matters of medicine; its verdict was of little value, the law officers frequently acting independently of it, and the verdict was sometimes accompanied by riders which were unreasonable or offensive to the medical profession.

Replying to the deputation, the home secretary suggested that it was not right to generalize with regard to coroners' courts from one or two exceptional instances. The coroner's inquest was occasionally very valuable, though he agreed that it might be capable of improvement.

Further medical grievances were then brought forward by the deputation. Physicians objected to the requirement to sign death certificates without payment. Also when a coroner wrote to a physician asking for information he should be entitled to offer a fee, especially as the information might obviate the need for an inquest. Resident medical officers in institutions who were called to give evidence at an inquest on a person dying in the institution should be paid. (This is a curious anomaly in the law. Every physician, except the officers in question, is paid a fee of $5 for giving evidence.) Finally, a fee of $5 for a postmortem examination was inadequate. The home secretary said in reply that he appreciated what had been put before him by the deputation.

PARIS

(From Our Regular Correspondent)

Aug. 27, 1920.

Congress of Physiology

At the International Congress of Physiology, recently held in Paris, Charles Richet, president of the congress, delivered an interesting address on the work which might fittingly be done in the domain of physiology.

Richet believes that scientists should never be preoccupied by considerations of immediate practical utility. They should strive for the knowledge of things rather than for the contrivance of a useful invention. Knowledge is of prime importance; utility will develop later, often by indirect means. It was thus that anaphylaxis, which today admittedly plays an important rôle in medicine and therapeutics, was born of disinterested research. When in collaboration with Portier, Richet made his first experiments with anaphylaxis on the yacht of Prince Albert of Monaco, he used birds and toxins derived from certain coelenterates of tropical seas in his tests; in other words, Richet and Portier were at the time very far from all application to medicine.

But even if scientific research should not aim at an immediate practical purpose, it is none the less warranted to choose among numerous subjects which present themselves for physiologic study those which by their very magnitude tend to influence allied sciences, such as sociology, medicine or hygiene. Now there are at the moment three questions which especially deserve to tempt the curiosity of the physiologist, namely, vitamins and nutrition, the physiology of the brain, and heredity.

So far as the question of vitamins and nutrition is concerned, Richet thinks that the physiologists of all countries, particularly of the United States, with good judgment are devoting their attention to this important subject of physiology, so closely related to sociology. The whole physiology of nutrition, including matter which has been taught for barely ten years, is subject to review. The experience of the World War has shown that our conceptions regarding the minimum nutritional requirements have been wrong. The fats play a hitherto unsuspected rôle in human nutrition, and the same holds true for the vitamins. Is not the cooking to which we subject almost all our foods an antiphysiologic procedure, contrary to wholesome nutrition? In the whole of nature, men are the only living beings who have to cook, and consequently perhaps, to deteriorate their foods. Would it not be opportune to revert at least partly to the fare of our remote ancestors, the men of the paleolithic or neolithic age?

Conjunctivitis Among Moving Picture Actors

Dr. Chappé of Paris recently called attention to the great frequency of a special variety of conjunctivitis among actors who pose for moving pictures. Places which are specially arranged for taking interior views are generally large rooms glazed like a conservatory. This permits work to be done by daylight, reenforced by an intense artificial light produced by a series of arc lamps constructed with special carbons which emit many actinic rays. These lamps are placed on movable carriages in groups of eight or ten lamps. As these carriages are placed to face the room where the moving picture scene is to be played, the actor is unfortunately forced to fix one or another group of lights. While each scene effectively registered does not last more than a few minutes, there are repeated and long trials and it is not rare for the same artist to occupy the stage, facing the lamps, for an hour or even for several consecutive hours. The morbid symptoms begin to manifest themselves after three or four hours by a sensation as of burning or of a foreign body. These pains soon become unbearable and are accompanied by lacrimation and intense photophobia; the bulbar conjunctiva is injected, the pupil contracted, and a more or less marked edema of the eyelids is observed. These phenomena always perturb the patient, especially if he is not a professional moving picture actor. After one or two days the discomfort lessens and soon disappears entirely. But besides these benign cases in which everything returns to normal after three or four days, there are also more severe cases.

From the point of view of prophylaxis, there should be reason for a study of special lamps and special arrangements; but this leads to a clash with the commercial side of the enterprise, owing to the cost of installing such special apparatus. This being so, the actors should undertake some sort of individual prophylaxis by protecting the eyes with glasses during the preliminary work and rehearsals, which last an incomparably longer time than the actual taking of the effective picture.

For treatment it will be found well to employ frequent lotions of sodium borate together with a collyrium of cocain and epinephrin. The same measures may likewise be used as prophylactics. Thus, in an establishment where on advice of Dr. Chappé the borated lotions and cocain and epinephrin instillations were systematically employed for several months, no further serious difficulties occurred.

Urologic Association Meeting

At the twentieth meeting of the Association française d'urologie, to be held in Paris, Oct. 6-9, 1920, the principal subject for discussion will be on the remote results of various operations for hypertrophy of the prostate, to be introduced by Professor Pousson of Bordeaux.

Death of Morat

Dr. J.-Pierre Morat, formerly professor of physiology at the Lyons medical faculty, has just died at the age of 75, in the village of Saint-Sorlin, near Mâcon, where he had lived since his retirement. Born in 1845, Morat began his medical studies at Lyons, but received his M.D. at Paris in 1873.

Having studied under Claude Bernard, he taught physiology at Lille from 1876 to 1882 and later at Lyons, where he attained the chair of physiology in 1884. In collaboration with Doyon of Lyons, he published in several volumes an important "Traité de physiologie." He was especially interested in the study of the nervous system and did some notable work on the sympathetic system. Professor Morat was a corresponding member of the Académie des sciences.

Personal

Dr. Vaquez, professor of internal medicine at the Paris medical faculty, has been appointed professor of clinical medicine to succeed Prof. Albert Robin, who has been placed on the retired list.

Statistics of Antirabic Inoculations

Dr. Viala, prosector of the antirabic service of the Pasteur Institute, has published the statistics of antirabic inoculations made at the Pasteur Institute during the year 1919. Of 1,815 persons subjected to the treatment, five, or roughly 0.27 per cent., have died of hydrophobia; in reality, this proportion should be reduced to 0.16 per cent., for one of the patients developed hydrophobia in the course of treatment, and another died of the disease in less than fifteen days after the termination of the protective inoculations. Since the introduction of antirabic vaccination (1886) hydrophobia was on a steady decrease until the eve of the war, at the outbreak of which a considerable recrudescence of the disease has been noted.

BERLIN

(From Our Regular Correspondent)

Aug. 20, 1920.

The Campaign Against Quackery

During the war the medical profession succeeded in obtaining from the military commanders in the various zones the issuance of orders by which the activities of quacks were almost suppressed, especially by limitation of their advertising. With the discontinuance of most of the war regulations these orders unfortunately were revoked, and quackery has quickly resorted to its former methods. Latterly the governments of individual states (Würtemberg) have promulgated regulations which counteract at least the most insolent abuses of the quacks. These regulations specify that all persons, other than registered physicians, who desire to practice the healing art as a profession shall furnish to the district medical officer information regarding this fact, together with certain personal data. Such persons are obliged to keep books wherein shall be entered pertinent facts regarding patients under treatment, the case history, the diagnosis, the treatment, and the date of the professional visit.

Of greater importance is the stipulation prohibiting public advertising so far as it makes vainglorious promises or is designed to deceive the public in respect to the education, ability or success of the healers. Announcements of methods or procedures for the prevention, mitigation or cure of disease are absolutely prohibited if they contain any misleading puffs or if the advertised methods are likely to cause injury to health. Unfortunately, it is not to be expected that these regulations will attain any considerable results. On the one hand, the control by public authorities over the quacks and their advertising is too lax, and, on the other hand, the quacks are shrewd enough to find ways of evading the regulations. There is little hope that quackery will be restrained by national legislation, for the passage of a national quackery act, which the government submitted to the lower house almost ten years ago, was blocked by the opposition of the social democratic party, whose influence is now much greater than in those days.

Women Physicians

Reference has repeatedly been made in these letters to the fact that the number of women students and women physicians shows an annual increase in Germany. There are at present approximately 8,000 women at German universities, twice the number registered five years ago and almost four times the number entered in 1910. Of these, more than 2,000 are medical students. In this relation it may be of interest to test the demand of gynecologic patients for women physicians.

Dr. W. Feilchenfeld contributed a notable article on this subject in a recent number of the *Deutsche medizinische Wochenschrift*. In order to obtain a basis for deciding the question, he compiled statistics of the number of members of the Charlottenburg krankenkasse who were attended by women physicians. In 1910 of approximately 52,000 cases of illness, only 136 were treated by women practitioners; for 1915 the figures were 72,000 and 929, and for 1917, 82,000 and 1,134, respectively. In 1910 only one woman physician was in the employ of the kasse, in 1912 there were three, and later, four. As the members are free to choose any of the kassen physicians, and as the women members outnumber the men more than three to one (46,000: 14,000 in 1918) it must be concluded that the demand for women physicians is very small. A study of the figures for Greater Berlin gives a similar result. In 1910 approximately 617,000 cases were treated by 867 kassen physicians, three of whom were women; of these only 1,700 cases were under treatment by the women physicians. Of 800,000 cases treated by 1,001 physicians in 1918, 8,400 were attended by eleven women physicians. Despite the fact that in Greater Berlin, as in Charlottenburg, women constitute 70 per cent. or more of the kassen membership, and despite the absence on military duty of many of the male physicians at a time when women from all classes of society joined the kassen; women physicians were consulted by only 1 per cent. of the patients.

Personal

Dr. Weber, municipal health officer of Berlin, has been appointed president of the Saxony department of health in Dresden. Dr. Weber organized the International Exposition of Hygiene in 1911, the success of which was undoubtedly largely responsible for his selection to the new post. He will probably accept the appointment, more especially since the position in Berlin, which he has occupied for six years, has not been very successful. The difficulties of the municipal health officer may even increase in the near future, owing to the political complexion of the municipal bodies and to the annexation of the suburban towns by Greater Berlin, embracing a population of more than 4,000,000.

BUENOS AIRES

(From Our Regular Correspondent)

Aug. 15, 1920.

The Governing Boards of the Universities

The conflict set up in the University of La Plata by the strike of the students is just coming to an end. By a decree, the legality of which has been disputed, the national government has applied the system already enforced in Cordoba and Buenos Aires. Under this plan the students and the professors and assistants in equal numbers elect the administrative heads of the faculties. In the elections just held the University Federation, which managed the strike, triumphed by an overwhelming majority, and all disorders thus came to an end automatically.

The elections of the medical faculty of Buenos Aires were held yesterday for the purpose of designating six councilors and two members of the administrative board of the university. The absence of professors was extremely conspicuous,

inasmuch as only twenty-five out of a total of 110 were in attendance. In this manner the fifty-eight student delegates elected their entire list. It is doubtful whether this silent holding off on the part of the professors is an effective and proper protest against an electoral system which they consider prejudicial.

Exchange Professors

Dr. S. Recasens, dean of the Madrid medical faculty, has arrived in this country, and Professor Krause, a prominent surgeon of Berlin, is expected within a few days. In conformity with an exchange agreement between the faculties of Buenos Aires and Montevideo, Drs. Arrizabalaga, Mérola, and Rosello have given a course of lectures in Buenos Aires, and Drs. Bosch Arana, Elizalde, Houssay and Agote have gone to the neighboring country. Prof. Aráoz Alfaro of Buenos Aires has been invited by the government of Paraguay to deliver some lectures in that country.

Influenza in San Luis

Another epidemic of influenza, which originated in a limited area of the province of San Luis, attained wide diffusion and great intensity. In the first days of the epidemic some alarm was occasioned by the announcement that it was an epidemic of bubonic plague, so that the national department of hygiene sent a special commission under direction of Dr. Izasmendi for the purpose of combating the epidemic. Very shortly, the true nature of the disease was proved and it declined rapidly.

Hygienic Station at San Luis

Construction work on a new hygienic station in San Luis city has just been begun by the interim president of the national department of health. As in analogous cases the institution will be administered by the national government.

Surgeon's Fees

It is a traditional custom in this country that after a surgical operation the surgeon presents a bill in which the fees of his medical colleagues are included. This practice is deeply rooted, is understood throughout the world and has never given rise to any moral or ethical improprieties.

On the invitation of the American College of Surgeons the surgeons of Buenos Aires have called several meetings of the Sociedad de Cirujia. A considerable element of good surgeons considered it better to separate the physician's fees from those of the surgeon, judging the matter from the point of view of principle alone, although it is not pointed out that any improprieties have resulted to date under the present system. Nevertheless, it is probable that this deep-rooted custom is going to be continued, as it is adopted by the majority.

Marriages

HAZEL PETRIE MOSBY, Lieut., M. C., U. S. Army, to Miss Selma P. Hoppe, both of Rockford, Ill., September 7.

EDWARD CARY RUSHMORE, Tuxedo Park, N. Y., to Miss Olive Louise Williams of Cobourg, Ont., August 15.

HERBERT SLEDGEFIELD THOMSON to Miss Bettie Bradford Wilkinson, both of Berkeley, Calif., September 15.

RUSSELL CLIFTON PARR to Miss Florence Adele Hedlund, both of Spokane, Wash., September 16.

JOHN WALKER MOORE, Louisville, Ky., to Miss Anna Stockett Kent of Wyncote, Pa., August 19.

ALBERTO H. STOCKBRIDGE, Lynn, Mass., to Miss Lillian A. Parker of Pownal, Me., recently.

ARTHUR GUSTAV HEININGER to Miss Pauline Travers, both of Gardner, Mass., August 24.

RANDOLPH WEST to Miss Emily Hutchinson Lee, both of New York City, September 2.

WALTER C. HARRIS, Worcester, Mass., to Miss Sadie Ryder of Clinton, Mass., August 25.

Deaths

George Gillett Thomas, Wilmington, N. C.; University of Maryland, Baltimore, 1871; aged 77; a member and once president of the Medical Society of the State of North Carolina; for many years superintendent and chief surgeon of the relief department of the Atlantic Coast Line; at one time president of the state board of health, and a member of the state board of medical examiners; died, about September 7.

George W. Clay, Malta, Mont.; Western University, London, Ont., 1899; aged 47; for two terms a member of the state senate, and renominated unopposed at the recent primary; who was responsible for the new building which now houses the state board of health, and introduced and put through most of the bills dealing with public health; died, September 3.

Benjamin Franklin Wilson, Anjouan, East Africa, formerly of New Bedford, Mass.; College of Physicians and Surgeons in the City of New York, 1861; aged 82; a surgeon of the U. S. Volunteers during the Civil War; who left New Bedford in 1865 on a whaling voyage, and settled on the Comoro Islands off the east coast of Africa; died, April 19, from laryngitis.

George Wesley McIntyre ● St. Peter, Minn.; Minnesota Hospital College, Minneapolis, 1883; University of the City of New York, 1891; aged 66; assistant physician to the Minnesota State Hospital, St. Peter, from 1883 to 1885, and 1889 to 1893; a member of the lunacy commission of Minnesota from 1898 to 1899; died, July 11, from valvular heart disease.

William Olin Forbes, Hot Springs, Ark.; Hahnemann Medical College, Chicago, 1896; aged 50; a member of the Arkansas Medical Society; formerly president of the federal medical board of the Hot Springs Reservation, and a member of the Illinois State Board of Health; died in Lincoln, Neb., August 26.

Charles Holt Thomas, Cambridge, Mass.; Boston University School of Medicine, 1888; aged 70; a member of the Massachusetts Medical Society; professor of clinical medicine in his alma mater; visiting physician to the Massachusetts Homeopathic Hospital; died, September 4, from heart disease.

Frederick Clark Bradner ● Englewood, N. J.; Columbia University College of Physicians and Surgeons, New York City, 1899; aged 47; chief surgeon of the Englewood Hospital; died in the Presbyterian Hospital, New York City, August 31, after an operation for the removal of gallstones.

Henry John Hinkel, Mt. Pleasant, Iowa; Baltimore University School of Medicine, 1896; College of Physicians and Surgeons, Baltimore 1900; aged 50; a member of the staff of the Mt. Pleasant State Hospital; died in the State University Hospital, Iowa City, August 22, from spinal meningitis.

Theodore Bert Torjuson ● Lovell, Wyo.; John A. Creighton Medical College, Omaha, 1909; aged 37; lieutenant, M. C., U. S. Army, and discharged Dec. 29, 1918; chief surgeon of the Lovell Hospital, and president of the Northwestern Medical Society of Wyoming; died, August 20.

Allen Richard Anderson, Ontario, Ore.; University of Minnesota, Minneapolis, 1917; aged 30; lieutenant, M. C., U. S. Army, and discharged Aug. 22, 1919; died in the Holy Rosary Hospital, Ontario, August 24, from pneumonia.

Howard John McDermid, Winnipeg, Manit.; Manitoba Medical College, Winnipeg, 1908; aged 35; superintendent of the Provincial Deaf and Dumb Institute, Winnipeg; was drowned, August 6, while swimming at Minaki.

Harry Deacon Wilson, Freeport, Ill.; Hahnemann Medical College, Philadelphia, 1897; aged 59; a member of the Illinois State Medical Society; while making a professional call, August 23, died suddenly from heart disease.

James W. Albert, Childress, Texas; Southern Medical College, Atlanta, Ga., 1883; aged 68; health officer of Childress; local surgeon of the Fort Worth and Denver Railroad; died, August 17, from nephritis.

George LeForest Miller, Omaha; College of Physicians and Surgeons in the City of New York, 1852; aged 89; founder and for more than twenty years editor of the Omaha *Herald;* died, August 28.

● Indicates "Fellow" of the American Medical Association.

Robert B. Cullers, Bentonville, Va.; College of Physicians and Surgeons, Baltimore, 1893; aged 56; a member of the Medical Society of Virginia; died, August 28, from arteriosclerosis.

Arad Keith Caldwell, Waynesburg, Ky.; University of Louisville, Ky., 1887; aged 52; a member of the Kentucky State Medical Association; died, July 11, from valvular heart disease.

Robert N. Younger, Snow Creek, Va.; Maryland Medical College, Baltimore, 1904; aged 40; a member of the Medical Society of Virginia; died, August 5, from cerebral hemorrhage.

John P. Bahrenburg, Nashville, Ill.; Homeopathic Medical College of Missouri, 1879; aged 89; died at the home of his daughter in Marissa, Ill., August 18, from senile debility.

Alvin Orpheus Ervin, New Holland, Ohio; Starling Medical College, Columbus, Ohio, 1900; aged 48; a member of the Ohio State Medical Association; died, about August 21.

LeRoy S. Woods, Rawson, Ohio; College of Physicians and Surgeons, Baltimore, 1887; aged 64; a member of the Ohio State Medical Association; died, about August 23.

Arthur Matthew Rodermund ● Athens, Wis.; College of Physicians and Surgeons, Chicago, 1907; aged 38; died at the home of his mother in Madison, Wis., August 24.

Julius H. Peterman, Ardmore, Okla.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1894; aged 80; died, May 31, from injuries received in a fall.

Samuel Harvard Irwin ● Grank Forks, N. D.; Trinity Medical College, Toronto, Ont., 1886; aged 60; died in a hospital in Grand Forks, about August 21.

Edgar Pleas, Collinsville, Okla.; University of Arkansas, Little Rock, 1893; aged 58; a member of the Oklahoma State Medical Association; died, August 14.

Julius Barton Threat, Pavo, Ga.; University of Georgia, Augusta, 1887; aged 61; a member of the Medical Association of Georgia; died, August 29.

James Henry Drum, Liverpool, N. Y.; Syracuse (N. Y.) University, 1891; aged 51; died in the Hospital of the Good Shepherd, Syracuse, August 28.

Frederick Lyons Appel ● Muscatine, Iowa; State University of Iowa, Iowa City, 1908; aged 38; died, August 24, from chronic interstitial nephritis.

William Patrick Dunlany, Oak Park, Ill.; Cleveland College of Physicians and Surgeons, 1897; aged 48; died, August 25, from arteriosclerosis.

George S. Ellis ● Sherman, Texas; Jefferson Medical College, 1875; age 63; d ied in Fayetteville, Ark., September 2, from acute gastritis.

Jarrot C. Windham, Mt. Olive, Miss. (license, Mississippi State Board of Health); aged 56; died in June from a gunshot wound.

Lee Matthew Ryan ● Banning, Calif.; Rush Medical College, 1907; aged 36; died in Glendale, Calif., August 19, from tuberculosis.

John Eichmann, Brenham, Texas; University of Leipzig, Germany, 1893; aged 58; died, July 15, from diabetic gangrene.

James Aiken, Berwyn, Pa.; University of Pennsylvania, Philadelphia, 1868; aged 71; died, June 11, from arteriosclerosis.

Harry J. Helfrich, Crawfordsville, Ind.; University of Louisville, Ky., 1896; aged 45; died recently in Mt. Pleasant, Calif.

Robert Hugh Hamill ● Summit N. J.; University of Pennsylvania, Philadelphia, 1878; aged 64; died, September 5.

Jacob H. C. King, Greenwood, Ark.; University of Arkansas, Little Rock, 1899; aged 60; died, about August 23.

Charles H. Mahar, Spiro, Okla.; Fort Worth (Texas) School of Medicine, 1897; aged 64; died, August 2.

Daniel Yoder, Catasauqua, Pa.; Pennsylvania Medical College, Philadelphia, 1858; aged 86; died, August 24.

Hardy J. Lasseter, Luthersville, Ga.; Louisville (Ky.) Medical College, 1874; aged 72; died, August 26.

Eugene W. Ayres, Hannibal, Mo.; St. Louis Medical College, 1861; aged 83; died, August 30.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE FRAUD ON THE PUBLIC AND ON THE PROFESSION

"PATENTS" AND PRESIDENTS

Nostrum Advertising in the Papers of the Presidential Candidates

"A careful reading of the Marion *Star* and the Dayton *News* convinces us that the owners of these papers are devoting more time to politics than to censoring the 'patent medicine' advertisements that appear in both papers."

The above is a quip of Franklin P. Adams ("F. P. A.") in the New York *Tribune's* "Conning Tower." It carried with it a suggestion. Recent copies (August, 1920) of the Dayton *News* and of the Marion *Star* were purchased, and this is what was found. The *Star* advertised:

Pinkham's Vegetable Compound	Peptona
Mayr's Wonderful Remedy	Mother's Friend
Dreco	Nerv-Worth
Hall's Catarrh Medicine	Lower's Prescription
Kimoids	Redex
Thedford's Black Draught	Haarlem Oil

Incidentally, the classified advertisements contained notices of a trance medium, a "Psychic Palmist" ("Her prophecies are true"), a matrimonial bureau, and that of a lady who would foretell your future. We feel sure that the owner of the *Star* does not really believe the statement made in his paper to the effect that the Pinkham nostrum (15 per cent. alcohol) "contains no narcotics or harmful drugs" and "is a safe medium for women." Nor can he believe that Mayr's Wonderful Remedy will remove the cause of appendicitis, or that Dreco will "give strength to weak kidneys" and "restore tired nerves." Certainly he does not actually suppose that the mixture of oil and soap sold as Mother's Friend for Expectant Mothers will really produce a "speedy recovery in childbirth." We are sure, too, that he has never stopped to consider that the statement in his paper that "Hall's Catarrh Medicine will cure catarrh" could not be made on the trade package which is subject to a federal law which prohibits false and fraudulent claims.

And what about the Dayton *News*? Here we found:

Nuxated Iron	Hem-Roid
Adler-i-ka	Mrs. Summers' Pile Suppositories
Capudine	Warner's Safe Kidney Remedy
Beecham's Pills	Dr. Carey's Marshroot
Glass' Consumption Cure	Pepgen
Pyramid Pile Treatment	Marmola
Haarlem Oil	Eno's Fruit Salt
Pinkham's Vegetable Compound	Dr. Burkhart's Vegetable Compound
Glando Tonic	

There were a few others and also an advertisement of a gentleman who claimed to be "The Specialist in Pelvic, Nervous, Blood and Skin Diseases" and who offered to apply his "patent" in "Strictures Gleet and Weakness." Of course, the owner of the *News* is not so lacking in modern medical knowledge as to believe that "Dr. Glass has positive proof that he is able to cure tuberculosis" by means of a nostrum that he offers for sale through the *News*. He does not really think that kidney disease is a sufficiently simple ailment to warrant self-treatment. It is inconceivable that he would approve the claim that "If you are overfat, opposed to physical exertion, fond of the table and its good things and still want to reduce your excess flesh" you can do so by taking Marmola Tablets. Obviously he does not think that Adler-i-ka prevents appendicitis and that Glando Tonic is "the only remedy of its kind on the market" and will "renew glandular activity." Nor, do we believe, does he give any weight to the "Thrilling Experiences" detailed in two columns of alleged testimonials for Pepgen, even though they do "all come from people in Dayton."

Evidently "F. P. A." hit the nail on the head. The owners of the Marion *Star* and the Dayton *News* have undoubtedly in

their engrossment in politics allowed certain advertisements to creep in their papers that they will be the first to condemn when their attention is called to them. As candidates for the highest office in the land carrying with it the implied duty of enforcing all federal laws—such, for instance, as the national Food and Drugs Act—these two newspaper publishers would, we are sure, be the last to approve of advertising that is not only a menace to health but a fraud on the public.

MORE MISBRANDED NOSTRUMS

Balsamo Carminativo del Dr. Jayne, etc.—The trustees of the estate of Dr. David Jayne, doing business under the name of "Dr. D. Jayne & Son," shipped in July and October, 1917, articles labeled in part "Balsamo Carminativo del Dr. Jayne," "Expectorante de Jayne," "Pildoras Sanativas del Dr. Jayne." "Alterativo del Dr. Jayne" and "Linimento ó Contra-Irritante de Jayne" which were misbranded. When analyzed by the federal chemists the Balsamo Carminativo was found to consist essentially of opium, a laxative plant drug (probably rhubarb), carbonates, ammonium and potassium salts, aromatics, sugar, alcohol and water. The Expectorante was found to consist essentially of opium, an antimony salt, sugar, alcohol, and water flavored with oil of anise and methyl salicylate. The Pildoras Sanativas were reported to consist essentially of aloes, gamboge, and a mercury salt while the Alterativo was reported to be essentially sarsaparilla, sassafras, licorice, potassium iodid, sugar, alcohol and water. The Linimento ó Contra-Irritante was found to consist essentially of oils of turpentine, sassafras and capsicum and soap, alcohol and water.

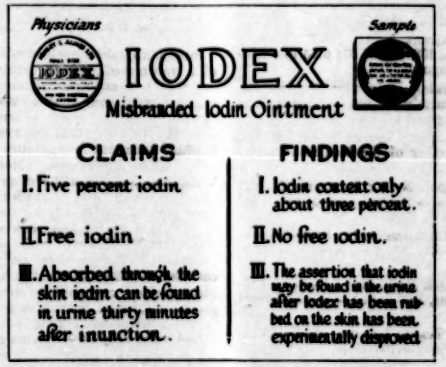
The Balsamo Carminativo del Dr. Jayne was declared misbranded because it was falsely and fraudulently represented as a treatment and cure for dysentery, cholera morbus, hysteria, melancholy, all diseases of the stomach and nerves, seasickness, etc. Furthermore, while it contained alcohol and opium, the label failed to bear a statement of the quantity or proportion of these drugs, and furthermore, bore statements that represented that the article could be administered with safety to children.

The Expectorante de Jayne was falsely and fraudulently represented as a treatment and cure for consumption, asthma, whooping cough, spitting of blood, croup, acute rheumatism and all diseases of the pulmonary organs. It, too, contained alcohol and opium but failed to have any declaration of the quantity or proportion of these drugs.

The Pildoras Sanativas were falsely and fraudulently represented as a treatment and cure for liver trouble, dyspepsia, diseases of women, gout, skin diseases, etc.

The Alterativo was falsely and fraudulently represented as a treatment and cure for cancer, scrofula, goiter, rheumatism, gout, pimples, dropsy and many other conditions. It was also further misbranded because it failed to declare the quantity or proportion of alcohol it contained.

The Linimento was falsely and fraudulently represented as a treatment and cure for sore throat, paralysis, rheumatism, tic douloureux, tumors, ringworm, etc. In December, 1919, the defendants entered pleas of *nolo contendere* and were fined $200.—[*Notice of Judgment No. 7252; issued Aug. 16, 1920.*]


Physicians
Sample
IODEX
Misbranded Iodin Ointment
CLAIMS
I. Five percent iodin.
II. Free iodin
III. Absorbed through the skin iodin can be found in urine thirty minutes after inunction.
FINDINGS
I. Iodin content only about three percent.
II. No free iodin.
III. The assertion that iodin may be found in the urine after Iodex has been rubbed on the skin has been experimentally disproved

This is a greatly reduced reproduction of one of the numerous educational posters shown at the New Orleans session in the exhibit of the Chemical Laboratory of the American Medical Association. The amount of *combined* iodin (in which form it is therapeutically valueless as an iodin salve) in "Iodex" was found to be 2.36, 3.20 and 3.24 per cent. as determined by three different analyses. *Free* iodin was not present in appreciable amounts. If an ointment containing *free* iodin is wanted, prescribe *Ung. Iodi, U. S. P.*

Kalwaryjskie Wino Leczniese.—This product was shipped in July, 1918, from New York to New Jersey by David Wroblewski, who did business as D. Wroblewski & Co., New York City. The federal chemists reported that the stuff consisted essentially of emodin (apparently from cascara sagrada), a slight amount of tannin, cinchona alkaloids, sugars, water and 14.6 per cent. of alcohol. The stuff was falsely and fraudulently labeled as a treatment and cure for all stomach disorders, all weaknesses and exhaustion caused by protracted illness, constipation, indigestion, sick headache, malnutrition, etc. Furthermore, the wrapper failed to bear a statement of the quantity or proportion of alcohol the stuff contained. In November, 1919, Wroblewski pleaded guilty and was fined $200.—[*Notice of Judgment No. 7375; issued Aug. 31, 1920.*]

Correspondence

"EXPERIENCES WITH LUMINAL IN EPILEPSY"

To the Editor:—The paper by Dr. Julius Grinker (THE JOURNAL, Aug. 28, 1920, p. 588) on luminal in epilepsy, and the accompanying discussion, move me to express certain opinions relative to convulsions generally.

While Dr. Grinker admits that epilepsy is a symptom of many diseases and not a disease entity, he states that he does not refer in his paper to convulsions of toxic origin, but only to "genuine or idiopathic epilepsy." But what is "genuine or idiopathic epilepsy?" We are not told, and if one were to ask a hundred practitioners probably as many definitions would be received. Therefore, I beg to define the word "idiopathic" as a cloak for ignorance which we all share. Presumably this convenient word embraces those conditions for which we are unable to find a pathologic basis. I myself believe, without any better proof than that furnished by a process of elimination, that the few cases that are hopelessly beyond analysis are due to an hereditary instability of the vasomotor center in the medulla and subject to slight influences, in the same manner as Raynaud's disease.

The majority of cases that come under observation are due to: (1) syphilis; (2) all grades of chronic acquired hydrocephalus, external or internal, resulting from posterior basic or vertical meningitis as a sequel of the acute exanthems, gonorrhea, typhoid, diphtheria, tonsillitis or poliencephalitis. Cases are frequent in which these factors are causal beyond a shadow of doubt; (3) purely psychic causes in which there is a discharge of energy direct from the affective sphere into the motor centers without any regulating intervention of the noetic consciousness; when this energy is discharged by driblets in this manner, the appearance is that of "tic"; (4) gross lesions of the brain, such as tumor; (5) toxic cases and pernicious anemia, and (6) disorders of the ductless and genital glands. Of Causes 1 to 5 I have had abundant experience; of 6, my information is chiefly retail.

In this state the hydrocephalic cases appear to be relatively frequent, and this fact I have confirmed by operations and resultant cures. Hence, if, as is asserted, large groups of epileptics can be classified according to their essential lesion, it becomes at once a matter of importance to know the exact pharmacologic action of any particular drug used. No mention has been made of the physiologic action of luminal.

With regard to the bromids, I unhesitatingly affirm that a search of the Pharmacopeia from cover to cover could not reveal a more undesirable drug for use and for this reason: An epileptic convulsion is a reaction on the part of Nature to combat a dangerous condition within the cranium. That deleterious condition has been abundantly shown to be a cerebral anemia. No matter what the lesion—whether positive pressure from tumor or hydrocephalus or negative pressure from loss of spinal fluid or the presence of a toxin—there is a spasm of the cerebral vessels, and the convulsion continues until the blood pressure is sufficiently raised to overcome that spasm. This rise of blood pressure is essential because there is no mechanism of direct sympathy between the cortex and the vasomotor center. Hence the convulsion does good work and prevents starvation of the cortex. Surely, then, it is scarcely scientific to treat the convulsion unless it has become merely a bad habit after abatement of the original cause. I have never seen such a habit after removal of the original cause, and when convulsions do persist for a while it is an effort to restore the circulation to the parts impoverished by the lesion; and it is surprisingly successful, as evidenced by paralyses and speech defects improving by leaps after each postoperative convulsion. Hence I am unable to see how bromid treatment can fail to hasten dementia and paralysis as fast as it dopes out the beneficent convulsion.

With regard to luminal, Dr. Grinker brings forward much empiric evidence as to its comparative harmlessness and efficacy, but in relation to the views given above it is desirable to know, first, whether it is a dilator of the cerebral vessels, and, secondly, whether it has any effect on the cerebrospinal fluid. From its effect on the petit mal attacks I suspect that it is a vasodilator. A few whiffs of chloroform will often arrest convulsions, by reason of its being a cerebral vasodilator and a narcotic combined. It would appear that luminal will prove itself a valuable drug in mild intractable cases and others that cannot be "run to earth"; and while offering a prayer that it may completely replace the degenerating bromids, it is to be hoped that its empiric success will not detract from a universal effort to diagnose the essential lesion in every case of epilepsy. I have known of only one case in which luminal was used and that with temporary benefit, followed by a relapse to twenty convulsions per night. I later found at operation a sticky basal arachnoid, removal of which effected a complete cure.

CECIL E. REYNOLDS, M.D., Los Angeles.

LOCAL ANESTHESIA BY QUININ SALTS, AND THE COMMITTEE REPORT

To the Editor:—The report of the committee of the Section on Laryngology, Otology and Rhinology on local anesthetics (THE JOURNAL, July 31, p. 315) states that quinin-urea hydrochlorid, so far as nose and throat operations are concerned, has practically gone into "innocuous desuetude." As I first reported cases of adenectomy and tonsillectomy performed under quinin anesthesia, may I be allowed to make the following statement:

My paper was published in THE JOURNAL, Aug. 8, 1908, p. 496. During the ensuing twelve years I have injected tonsils and adenoids with no other drug. During the earlier years I was sometimes annoyed by edema and a slight amount of sloughing. I was using 3 grains of quinin hydrochlorid in 2 drams of water. Since reducing the strength of my solution to 1½ grains to 2 drams I have had no reason to complain of my results. My technic is as follows: Half an hour before operation the patient is given from 4 to 8 drops of a 0.1 per cent. solution of scopolamin under the tongue. One half of a 3 grain powder of quinin hydrochlorid is freshly boiled in a spoon with sufficient water (distilled) to fill my 2 dram syringe. The tonsil to be removed, with its pillars, is thoroughly massaged with a stiff applicator wound with a very small amount of cotton with a minimum amount of 20 per cent. cocain kept sterile by 1 per cent. phenol. This is repeated three times at two or three minute intervals, after which the quinin solution containing 2 or 3 minims of epinephrin solution is introduced with a short, straight needle deeply into the supratonsillar and infratonsillar regions as well as through the pillars. After from ten to fifteen minutes the anesthesia is generally entirely satisfactory to both patient and surgeon. The complete absence of toxic symptoms would seem to make this as satisfactory a method as any that has been devised, and I believe is entitled to a better fate than "innocuous desuetude."

EDWARD J. BROWN, M.D., Minneapolis.

"INOCULATION AGAINST HAY-FEVER"

To the Editor:—In THE JOURNAL, Sept. 4, 1920, Dr. Will Walter relates his experience with the injection of antigen for the treatment of hay-fever. He relates the case of a patient who went into severe anaphylactic shock five minutes after an injection of ragweed pollen extract given on the fifth day of the expected attack. Considering this case as a warning, he advises against preseasonal inoculations, particularly of large doses at the time when the patient has to face the mass attack of the causative pollens.

In attempting desensitization, we must always start with small doses because in man we cannot determine the fatal dose and, therefore, must begin with a fraction of it. It has been proved by the experiments of Weil that small amounts injected repeatedly will desensitize against small amounts, whereas the injection of large amounts of proteins will desensitize against large amounts. Therefore, the method of gradually increasing the dose is theoretically correct, and the patient must be rendered refractory to large doses about the time of the expected attack.

I also have observed more or less severe reactions when I reached larger doses, particularly about the time when the attack was expected. The patients were inclined at first to doubt the effects of desensitization, but had to admit that the attacks were only transitory and much milder than those experienced during former seasons when they had not undergone treatment. Encouraged by this admission, I have adopted a plan of supportive epinephrin treatment to protect the patients from severe reactions or anaphylactic shock. Besides the well known antianaphylactic effect of this hormone, Meltzer and Auer have shown that it also delays absorption. The mucous membrane treated with epinephrin will therefore oppose to a certain extent, the mass absorption of the foreign protein at the time of the expected attack.

My plan of treatment consists in using epinephrin instillations into the nasal cavities from the beginning of the desensitization treatment. I prescribe a solution of epinephrin chlorid, 1:1,000, diluted with distilled water to 1:4,000. Two drops of this are instilled into each nostril three times daily with a medicine dropper. At the same time that I reach the last three or four pollen injections (say the eleventh or twelfth), I double the previous dose and continue the same dose for the last three or four injections, taking

care to give at the same time intramuscularly 2 or 3 minims of epinephrin. The results of this plan of treatment have been very gratifying in my experience.

ADOLF GARNET, M.D., New York.
Instructor in Medicine, Columbia University.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ARIZONA: Phoenix, Oct. 5-6. Sec., Dr. Ancil Martin, Phoenix.
CALIFORNIA: Sacramento, Oct. 18-21. Sec., Dr. C. B. Pinkham, 520 Forum Bldg., Sacramento.
COLORADO: Denver, Oct. 5. Sec., Dr. David A. Strickler, Denver.
DISTRICT OF COLUMBIA: Washington, Oct. 12-15. Sec., Dr. Edgar P. Copeland, 1315 Rhode Island Ave., Washington.
FLORIDA: Jacksonville, Nov. 4. Sec., Homeo. Board, Dr. Geo. A. Davis, Sec., East Port.
GEORGIA: Atlanta, Oct. 12-14. Sec., Dr. C. T. Nolan, Marietta.
IDAHO: Boise, Oct. 5. Commissioner, Hon. Robert O. Jones, Boise.
ILLINOIS: Chicago, Sept. 20-23. Director, Francis W. Shepardson, State House, Springfield.
KANSAS: Topeka, Oct. 12-13. Sec., Dr. H. A. Dykes, Lebanon.
LOUISIANA: New Orleans, Nov. 2. Sec., Homeo. Board, Dr. F. H. Hardenstein, 702 Macheca Bldg., New Orleans.
MICHIGAN: Lansing, Oct. 12-14. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.
MINNESOTA: Minneapolis, Oct. 5-7. Sec., Dr. Thomas S. McDavitt, St. Paul.
MISSOURI: Kansas City, Oct. 6-8. Sec., Dr. Geo. H. Jones, State House, Jefferson City.
MONTANA: Helena, Oct. 5. Sec., Dr. S. A. Cooney, Helena.
NEVADA: Carson City, Nov. 1. Sec., Dr. Simeon L. Lee, Carson City.
NEW JERSEY: Trenton, Oct. 19-20. Sec., Dr. Alexander MacAlister, State House, Trenton.
NEW MEXICO: Santa Fe, Oct. 11-12. Sec., Dr. R. E. McBride, Las Cruces.
NEW YORK: Albany, Buffalo, New York and Syracuse, Oct. 4-7. Assistant Prof. Examinations, Mr. Herbert J. Hamilton, Albany.
OKLAHOMA: Oklahoma City, Oct. 13-14. Sec., Dr. James M. Byrum, Shawnee.
PORTO RICO: San Juan, Oct. 5. Sec., Dr. M. Quevedo Baez, San Juan.
RHODE ISLAND: Providence, Oct. 7-8. Sec., Dr. Byron W. Richards, Providence.
WEST VIRGINIA: Charleston, Oct. 12. Sec., Dr. S. L. Jepson, Charleston.
WYOMING: Sheridan, Oct. 4-6. Sec., Dr. J. D. Shingle, Cheyenne.

New Mexico January Examination

Dr. R. E. McBride, secretary, New Mexico State Board of Medical Examiners, reports that 12 candidates were licensed on diploma at the meeting held at Santa Fe, Jan. 12, 1920. The following colleges were represented:

College	LICENSED ON DIPLOMA	Year Grad.
Chicago College of Medicine and Surgery		(1912), (1915)
College of Physicians and Surgeons, Keokuk		(1876)
Kansas Medical College		(1900)
University of Louisville		(1911)
Baltimore Medical College		(1904)
University of Buffalo		(1918, 2)
Memphis Hospital Medical College		(1912)
Vanderbilt University		(1906)
Baylor University		(1916)
Milwaukee Medical College		(1906)

Virginia June Examination

Dr. J. W. Preston, secretary, Virginia State Board of Medical Examiners, reports the written examination held at Richmond, June 22-25, 1920. The examination covered 8 subjects and included 80 questions. An average of 75 per cent. was required to pass. Of the 49 candidates examined, 46, including 1 osteopath, passed and 3 failed. Seventeen candidates, including 2 osteopaths, were licensed by reciprocity. Six candidates were licensed on Navy credentials. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
College of Physicians and Surgeons, Los Angeles		(1914)	81
George Washington University		(1919) 91, (1920)	89
Hahnemann Medical College and Hospital, Chicago		(1919)	89
Johns Hopkins University		(1917) 83, (1920)	86, 86
North Carolina Medical College		(1919)	75
Hahnemann Med. College and Hospital, Philadelphia		(1920)	89, 90
Jefferson Medical College		(1919)	88
University of Pennsylvania		(1919) 90, (1920) 86,	92, 92
Medical College of Virginia		(1917) 91, (1918) 75, (1920)	80, 81, 83, 83, 86, 86, 87, 87, 87, 87, 89, 90, 91, 92, 93, 94, 96
University of Virginia		(1914) 91, (1920)	86, 87, 88, 88, 89, 90, 91, 92, 92
University of London		(1908)	81
	FAILED		
Lincoln Medical College		(1911)	73
Medical College of Virginia		(1918)	66, 70

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
George Washington University		(1902)	Penna.
Howard University		(1913)	Dist. Colum.
Bennett Medical College		(1914)	W. Virginia
Louisville and Hospital Medical College		(1908)	W. Virginia
Baltimore Medical College	(1905)	Maryland, (1908)	W. Virginia
University of Maryland		(1914)	Maryland
Albany Medical College		(1913)	New York
Columbia University		(1898)	New York
North Carolina Medical College		(1914)	N. Carolina
Ohio State University College of Medicine		(1917)	Ohio
Jefferson Medical College		(1916)	N. Carolina
Woman's Medical College of Pennsylvania		(1896)	Mass.
Medical College of Virginia		(1908), (1910)	N. Carolina

College	ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement with
Harvard University		(1896)	U. S. Navy
Tufts College Medical School		(1917)	U. S. Navy
Temple University		(1916)	U. S. Navy
Medical College of Virginia		(1917, 2)	U. S. Navy
University of Virginia		(1918)	U. S. Navy

Book Notices

INFECTIOUS DISEASES. A Practical Textbook. By Claude Buchanan Ker, M.D., F.R.C.P., Medical Superintendent, City Hospital, Edinburgh. Second edition. Cloth. Price, $17. Pp. 627, with illustrations. New York: Oxford University Press, 1920.

Dr. Ker's discussion of infectious diseases is based on his observations and bedside experiences in a large infectious disease practice in the City Hospital in Edinburgh, of which he is medical superintendent. The book presents a well-written account of all the common infectious diseases, under the headings etiology, pathology, symptoms, diagnosis, prevention and treatment. The discussions are quite up to date, with the exception that the author appears to have somewhat too great a bias in favor of small doses of alcohol in the treatment of the early stages of these diseases. This may be taken as evidence that in Scotland old ideas as to the value of alcohol as a medicine still prevail. The records of at least one American infectious disease hospital are available in which no alcohol whatever is used and in which the mortality statistics compare more than favorably with those of the Edinburgh and other hospitals in which alcohol is used as a routine. Dr. Ker has kept up with the literature of his subject. While he has not been able to make actual personal trials of all the new methods of diagnosis, prevention and treatment which have come to his attention, he has selected for discussion only those which appear reasonable. In this book more than in any other English volume that has come to the reviewer's attention, American investigators receive full credit for their work. The book is well printed and excellently illustrated. On the whole, it is one of the best available books on the general subject of infectious diseases.

HERMAN'S DIFFICULT LABOUR. A Guide for Students and Practitioners. Sixth Edition Revised and Enlarged by Carlton Oldfield, M.D., F.R.C.S., Lecturer on Gynaecology, University of Leeds. Cloth. Price, $4.25. Pp. 573, with 198 illustrations. New York: William Wood and Company, 1920.

The present, the sixth, edition of this work has been revised, and many new illustrations have been added. It is well written and as a whole gives good advice in handling difficult labor cases to those who deliver women in homes. In several instances, however, the advice given does not conform to American practice. The use of ergot is recommended in several places before delivery of the placenta to prevent postpartum hemorrhage. This advice, in view of the use of pituitary extract, is to be regretted. The author does not give enough attention to tears of the vagina. He states that unless there is a great deal of bleeding, the rent does not need to be stitched. He recommends the use of vaginal douches, and allows the tears to heal by granulation. The present American teaching advises either immediate repair or repair within the first few days after delivery. He also passes over injuries to the levator ani muscles and pelvic fascia in a superficial manner. He does, however, recommend

that a lacerated perineum be sewed up without delay. It would seem that if stitches are to be used in one part of the genital tract, they are equally as important in another portion. The use of antiseptic douches, including surgical solution of chlorinated soda (Dakin's solution) and Carrel tubes, is recommended. Antiseptic douches of various types have been recommended from time to time in the past, but today most obstetricians have discarded them as dangerous. Infection in the uterine cavity cannot be compared to infection seen in gunshot wounds, etc. In the latter type of wound one is able to place the tubes in the various layers, whereas in uterine infection the bacteria are beyond the endometrium in the muscle fibers, where tubes cannot be placed. Thus, Dakin's solution cannot penetrate deeply enough. Under these circumstances, it hardly seems plausible that irrigating the uterus could be of much value. In fact, it has proved fatal in many cases. The treatment of inversion of the uterus is not well written. Nothing is said regarding operative treatment. The treatment of eclampsia and labor in a flat pelvis is excellently written. In fact, the advice throughout the book in general is well taken. The illustrations are well done and to the point. The book is one that the general practitioner can use frequently.

LECTURES TO STUDENTS ON DIPHTHERIA, MEASLES, SCARLATINA. By Frank V. G. Scholes, M.D., B.S., D.P.H., Medical Superintendent, Infectious Diseases Hospital, Fairfield, Melbourne. Cloth. Price, 9 shillings & sixpence. Pp. 236. Melbourne: Modern Printing Company Pty. Ltd., 1920.

The author's preface states that this book "is meant only to represent in the briefest possible way the main points in pathology, and a rational and practical attitude in respect to diagnosis, prognosis and treatment." It is the result of a slight amplification of a limited number of lectures, and is intended to be used in conjunction with ward work by senior students. The book is not to be compared with the usual "outline" or "quiz compend." It is the personal product of one whose thorough grasp of the subject from extensive experience with cases is evident on every page. We are not familiar with any other small work that presents the subjects in such a lucid, systematic form. The book will serve as a great aid to others who are teaching students. It can be recommended without reserve to students, and would prove a valuable addition to the library of every practitioner.

NORMAL HISTOLOGY WITH SPECIAL REFERENCE TO THE STRUCTURE OF THE HUMAN BODY. By George A. Piersol, M.D., Sc.D., Professor of Anatomy in the University of Pennsylvania. Twelfth edition. Cloth. Price, $4.50. Pp. 418, with 438 illustrations. Philadelphia: J. B. Lippincott Company, 1920.

Piersol's work on normal histology has become a standard, and by issuing frequent editions it is kept up to date. There are numerous excellent illustrations, most of them pen and ink drawings; there are no photomicrographs, although these are of greater accuracy. Perhaps this is just as well, since the medical student and practitioner seldom have a photomicroscope available and will themselves be called on to make pencil reproductions of what they see.

LOCAS DE LA COLONIA. Por H. Valdizán. Paper. Pp. 130. Lima: Sanmarti y Ca., 1919.

The author, who is professor of nervous and mental diseases of the School of Medicine of Lima, has made a study of insanity in the colonial epoch of Peruvian history, using for this purpose biographic data from different sources, and especially the old chroniclers. His collection of types is rather extensive, and many of the cases mentioned are interesting. The book forms an important contribution to the history of neuroses in Peru.

AL PIE DE LA CUNA. Por el Dr. Néstor Morales Villazón. Second edition. Paper. Pp. 254. La Paz: Gonzalez y Medina, 1919.

This is the second edition of Dr. Morales' work on infant welfare, intended as advice to prospective mothers. The book was originally published as a newspaper serial and is written in popular style, suitable to his audience. While nothing new is to be expected in a book of this character, Morales' presentation of the subject and the timeliness of his remarks are to be commended.

Medicolegal

Getting Employment on Another's Physical Examination

(Stafford v. Baltimore & O. R. Co. (U. S.), 262 Fed. R. 807)

The United States District Court, for the Nothern District of West Virginia, says that a special plea interposed by the defendant to this action, brought to recover damages for personal injuries, presented such an extraordinary statement of facts as to render the legal questions involved in the plaintiff's motion to strike it out extremely perplexing. The plea, in brief, stated that the defendant had certain established rules governing employment by it of men in the capacity of brakemen. They had to be within a certain age. They had to appear before its medical examiner and undergo a physical examination, which would show them to be of such physique and in such condition of health as to fit them, in the judgment of such examiner and the employing officers of the company, properly to perform the important and dangerous duties of brakemen in its service. No one could secure this service without coming within the rules laid down for such physical examination. That the plaintiff, knowing these rules, being over the required age and physically unable to pass the required medical examination, secured another man within the required age and physically fit to assume the plaintiff's name and be examined, and under the plaintiff's name to secure such certificate or report from the medical examiner, which enabled the plaintiff to secure the employment of brakeman, in which employment, so fraudulently obtained, he was injured. All of the authorities that the court could find were more or less irrelevant, making the question presented one of first impression, that of a man over age, and charged to be physically incompetent under the rules of the company, securing by the fraudulent personation by another a service of danger and responsibility, and, notwithstanding his fraud and deceit, seeking to hold the defrauded company responsible for an injury sustained by him in a place where he had no legal or other right to be. Had he not committed the fraud on the company, he would not have been injured. The force of the resoning to the effect that he could secure no benefit by reason of his fraud was stronger against his claim than it was where there was misrepresentation, of his age by a minor, for whose protection the law specially provides. The force of the moral side of the question bore strongly, too, in the same direction. Railroad brakemen fill a very responsible place in railroad operation. Not only the corporation, but the public also, is vitally interested in his physical and other ability to protect both lives and property from destruction. It seems clear to the court that, whatever principle might be applied, it could not be here relied on to the extent of rejecting the defendant's plea offhand, and forbidding the matters set up in it, if proved, from becoming pertinent to the issues to be determined on the trial. Wherefore, the motion to strike out the plea was denied. Subsequently, on motion of the plaintiff, and at his costs, this case was dismissed.

Insufficient Proof as to Cause of Death from Anthrax

(Eldridge v. Endicott, Johnson & Co. et al. (N. Y.), 126 N. E. R. 254)

The Court of Appeals of New York reverses an order of the appellate division of the supreme court, which affirmed an award of the state industrial commission for the death of one Eldridge, an employee at a tannery, who died of anthrax, because of insufficient evidence as to when and how the disease was contracted. The court says that Eldridge's work was counting hides as they were unloaded at the freight cars. The hides were called Ceara hides from Southern Mexico and South American countries. On the 16th of the month, his neck was slightly cut with a razor, while he was being shaved at a public barber shop. A pimple appeared after the cut had healed over. His wife pricked this with a needle and applied a poultice of sugar and soap, and covered it with a cloth which went around his neck. At that time the neck was not swollen. That was on the 17th of the month. He went to work, and when he returned at night his neck was swollen, and three days thereafter he died of anthrax. Some of the

other employees noticed that his neck was swollen while he was at work. Solely on this evidence the state industrial commission found that the reasonable inference was that he contracted anthrax in the course of his employment. No evidence was given as to the nature of anthrax, whether hides such as those in question have anthrax bacteria and whether and in what way it may be tranmitted to men. But the commission presumed that, because Eldridge had a cut or a pimple, worked in a tannery about hides, and died of anthrax, he must have received the injury in the course of his employment. But this court does not think that this was a case in which the commission was justified in taking judicial notice or in presuming that hides such as those in question usually or frequently contain anthrax germs, and that a person working about them with an open wound is likely to receive the germ and die of anthrax. In the absence of all proof on the subject, the commission was not justified in presuming that the hides in question had anthrax, and that the germ could pass to a person working about them; in other words, the commission could not take judicial notice of the nature of these skins or their susceptibility to anthrax or to the method or likelihood of inoculation by an employee. Some evidence should have been given on these matters to justify the assumption and finding made. If this employee had been inoculated through the cut in his neck with anthrax germs from the hides, and the cut had been received a few days before at the barber shop while he was being shaved, a question might arise as to whether the inoculation was an accidental personal injury arising out of his employment; but the court does not reach this question, and will not attempt to decide it, as the facts of the case are not substantiated by any evidence, and the matter must be sent back to the commission for a rehearing.

Treatment of Shattered Elbow—Advising Seeing Physician from War Zone

(Scherer v. Eidenmuller (Calif.), 187 Pac. R. 445)

The District Court of Appeal of California, First District, Division 2, in reversing a judgment for $2,000 damages that was rendered against the defendant for alleged improper treatment of a gunshot wound which the plaintiff received in his right elbow, April 24, says that the bullet passed through the joint, shattering the bones. The plaintiff was treated at an emergency hospital, where the wound was bandaged, after which he returned to his home. That evening, on account of the pain's having become very severe, he summoned the defendant, who administered a hypodermic to ease the pain. The next morning the defendant directed the plaintiff to go to a hospital for treatment, and while he was at the hospital the defendant examined the wound, had roentgenograms taken, and bandaged the arm again. The arm was badly swollen and inflamed, and it was decided that an operation was not advisable until that condition was relieved. May 11, the swelling and inflammation having subsided somewhat, an operation was performed by the defendant, assisted by another physician, and the arm was placed in a plaster cast, through which an opening was made to allow access to the wound for cleansing and treatment. Later the cast was removed and the arm placed in splints. The arm showed signs of infection and discharged pus from the date of the operation until August 11, when, the wound having failed to heal, roentgenograms were again taken, and the defendant advised that another operation would be necessary. The defendant also stated that he would take the plaintiff to another physician, who had just returned from the war zone and who had had considerable experience with injuries of this character. The plaintiff and the defendant together consulted that other physician, who also advised another operation. The plaintiff thereupon discontinued his visits to the defendant's office and consulted other physicians, who performed a second operation, after which the wound healed rapidly, but the elbow remained stiffened.

The defendant attacked the verdict as unsustained by the evidence, which raised a question of law as to the construction of the evidence under the rule that what is or is not proper practice in examination and treatment by a physician and surgeon or the usual practice and treatment is a question for experts and can be established only by their testimony. The plaintiff contended that the defendant was negligent in not taking roentgenograms after the operation and before August 21, for it was contended that if they had been taken they would have shown a condition calling for a second operation, and it was argued inferentially that an earlier second operation would have prevented the arm's becoming stiff. The only expert testimony offered by the plaintiff for the purpose of establishing the negligence of the defendant was that of a physician from whose entire testimony it clearly appeared that whether or not it would be desirable to take roentgenograms at frequent intervals would depend on the individual case and the personal knowledge of the internal situation; and that it would have been unwise to operate during the time that the wound showed signs of infection. The court thinks that the testimony on which the plaintiff must rest to establish negligence in the treatment received by him fell far short of the proof required.

The plaintiff argued that because the defendant stated to him about August 20 that he would take him for the second operation to the physician who had just returned from the war zone, who had had more experience with such cases, while the defendant had not had a case like this one before, this amounted to an admission of incompetence and unskilfulness on the part of the defendant. But this court does not think that these statements were susceptible of any such construction. The fact that the other physician was admitted to be more experienced and skilled along this particular line did not imply that the defendant did not possess that reasonable degree of learning and skill possessed by others of his profession in his locality. Surely it will not be contended that the measure of ordinary skill is the amount of skill and experience acquired by physicians who have been working for some time in the war zone and handling a constant succession of difficult and unusual cases.

The fact that a patient does not make a complete recovery raises no presumption of the absence of proper skill and attention on the part of the attending physician.

Necropsy Without Notice to Insurance Company

(O'Brion v. Columbian Nat. Life Ins. Co. (Me.), 109 Atl. R. 370)

The Supreme Judicial Court of Maine holds that the necropsy contemplated by a provision of an accident insurance policy giving any medical adviser of the company the right and opportunity to be present if any necropsy is made, "timely notice of which must be given to the company," is an unofficial one—one made at the instigation of the beneficiary—and then it is only fair, as prescribed, that seasonable notice thereof be given to the company. But no notice is required, and the provision is not violated, when an official necropsy is made by an officer of the state in behalf of the state and under the restrictions provided by statute, when only such persons can be present as the medical examiner under the statute shall see fit to admit, the beneficiary under the policy and the insurance company being entire strangers to that proceeding, and not entitled to claim any rights therein.

Society Proceedings

COMING MEETINGS

Am. Acad. of Ophthal. and Otolaryng., Kansas City, Mo., Oct. 14-16.
Amer. Assn. of Obstetricians and Gynecologists, Atlantic City, Sept. 20-22.
American Association of Railway Surgeons, Chicago, Oct. 6-8.
American Child Hygiene Association, St. Louis, Mo., Oct. 11-13.
American Hospital Association, Montreal, Quebec, Oct. 4-8.
Delaware State Medical Society, Wilmington, Oct. 11-12.
Indiana State Medical Association, South Bend, Sept. 23-25.
Kentucky State Medical Association, Lexington, Sept. 27-30.
Minnesota State Medical Association, St. Paul, Sept. 29-30.
Mississippi Valley Medical Association, Chicago, Oct. 26-28.
New England Surgical Society, Providence, R. I., Oct. 6-7.
New Mexico Medical Society, Roswell, Oct. 15-16.
Pennsylvania, Medical Society of the State of, Pittsburgh, Oct. 4-7.
Tri-State District Medical Society, Waterloo, Iowa, Oct. 4-7.
Vermont State Medical Society, Rutland, Oct. 7-8.
Virginia, Medical Society of, Petersburg, Oct. 26-29.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Ophthalmology, Chicago

May, 1920, 3, No. 5

Fundus of Eye After Death. H. V. Wurdemann, Seattle, Wash.—p. 321.
Ocular Lesions Caused by Asphyxiating Gases. M. Danis, Brussels, Belgium.—p. 323.
Removal of Steel from Eye from Industrial Standpoint. C. A. Clapp, Baltimore.—p. 325.
Fungus Concretion in Lacrimal Canaliculus (Streptothricosis, Actinomycosis). C. S. G. Nagel, San Francisco.—p. 327.
Carcinoma of Orbit Probably Originating in Lacrimal Gland. C. N. Howard, Warsaw, Ind.—p. 332.
Lantern and Apparatus for Testing Light Sense and for Determining Acuity at Low Illuminations. C. E. Ferree and G. Rand, Bryn Mawr, Pa. p. 335.
Injection of Oily Solution of Iodin for Glaucoma. R. Kerry, Montreal.—p. 341.
Organization and Activities of Ophthalmic Service in American Army of Occupation. R. A. Fenton, Portland, Ore.—p. 343.
Interrelation Between Eye, Ear, Nose and Throat with Presentation of Cases. J. C. Beck and E. Deutsch, Chicago.—p. 349.

American Journal of Physiology, Baltimore

August, 1920, 53, No. 1

*Transfusion Experiment with Red Blood Corpuscles. H. Kambe and K. Komiya, Tokyo.—p. 1.
*Regeneration of Vagus Nerve. F. T. Rogers, Chicago.—p. 15.
Effect of Various Substances on Coagulation of Citrated Plasma. B. Karpman, Minn.—p. 25.
*Influence of Pituitary Extracts on Absorption of Water from Small Intestine. M. H. Rees, Vermilion, S. D.—p. 43.
*Specific Influence of Accelerator Nerves on Duration of Ventricular Systole. C. J. Wiggers and L. N. Katz, Cleveland.—p. 49.
*Influence of Sugars and Candies on Gastric Secretion. R. J. Miller, O. Bergeim, M. E. Rehfuss and P. B. Hawk, Philadelphia.—p. 65.
*Further Evidence on Functional Correlation of Hypophysis and Thyroid. J. A. Larson, Berkeley, Calif.—p. 89.
*Influence of an Alcoholic Extract of Thyroid Gland on Polyneuritic Pigeons and Metamorphosis of Tadpoles. E. C. Seaman, New York.—p. 101.
*Alkali Reserve in Experimental Surgical Shock. B. Raymund, Chicago.—p. 109.
Physico-Chemical Studies on Bioluminescence. III. Production of Light by Luciola Vitticollis is an Oxidation. S. Kanda.—p. 137.

Viability of Transfused Erythrocytes.—Kambe and Komiya claim that transfused red cells even preserved in ice for a long time, not to mention fresh blood, are capable of functioning if transfused into the animal body of the same species. Erythrocytes preserved as defibrinated blood maintain their normal vitality for twenty days, in the mixtures of isotonic sodium citrate and isotonic dextrose, even for thirty days and more; thus they may be used to replace the blood lost. A sudden anemia occasionally develops a few days after transfusion. There is a possibility that this is due to the isolysin, even though it occurred only in isolated cases. We are, however, unable to draw a sure conclusion from the present work, but will pursue further our studies which may throw some light on this point,

Regeneration of Sectioned Vagus.—One vagus nerve was sectioned by Rogers and the ends approximated so as to allow regeneration to occur in a series of dogs and cats. The regenerating fibers were stimulated electrically at time intervals varying from one to sixteen months after cutting. These tests made with the animals under ether anesthesia gave no evidence of the regeneration of either cardiac inhibitory or gastric motor fibers. In one dog twenty months after one vagus was sectioned, this nerve was stimulated with the dog in a comatose condition but no ether anesthesia. Distinct cardiac inhibition followed. In two dogs, section of the remaining normal vagus, sixteen and twenty months after previously sectioning and suturing the other, led to death in sixteen and thirty-four days, respectively. Apparently death was due to starvation resulting from difficulty in swallowing and frequent vomiting. During the period of life following section of the second vagus, the following facts were noted: 1. An immediate marked increase in pulse rate followed section of the second vagus. This slowly declined and after eleven to fourteen days the rate was that of a normal animal. At this stage atropin caused a great increase in the rate of the heart beat. These effects occurred in a dog in which the regenerating nerve was not functional for subsequent division of the nerve caused no change in the heart rate. 2. With only the regenerating nerve intact, but with no evidence of it being functional, atropin reduced the gastric motility. 3. The rate of breathing with only the regenerating nerve intact was the same as it was with one vagus intact. Cutting the regenerating nerve led to the classic picture of slow labored breathing. Stimulation of the regenerating nerve above and below the scar caused the normal respiratory inhibition and pressor effects on the blood pressure. Regeneration of the vagus fibers necessary to maintain the normal respiratory rhythm had therefore occurred. Whether these were motor to the larynx or afferent from the lungs was not determined. After bilateral vagotomy, some compensatory process is set up whereby the pulse rate is brought back to normal in spite of the absence of the vagi.

Pituitary Extract and Intestinal Absorption.—Rees' investigation lead him to the conclusion that subcutaneous injections of pituitary extract bring about a delay in the absorption of water from the small intestine. This delay does not seem to be sufficient, in most cases, to account entirely for the delay in the excretion of water from the kidneys which has been found to result from these injections. Rees suggests the possibility that the subcutaneous injection of pituitary extract may cause some vasoconstriction of the intestinal vessels. This cannot be pronounced or very extensive since it has been repeatedly shown and was verified that subcutaneous injections of pituitary extracts do not cause a variation in the general blood pressure.

Accelerator Nerves and Ventricular Systole.—Although it had been shown by previous investigators that stimulation of the accelerator nerves causes a marked reduction in the duration of systole, it had not been demonstrated that this reduction was greater than could be accounted for on Henderson's law of "uniformity of behavior," and consequently no clear demonstration existed of any specific effect on the ventricular musculature. By determining the duration of systole as well as the cycle length in a slow vagal beat, Wiggers and Katz found it possible to construct a probable volume curve for each animal and from it to derive a plot of the theoretical relation that should exist between cycle and systole lengths at any heart rate if the heart, during changing nervous action, beats according to a uniform law. The conclusions are reached that the accelerator nerves have a specific effect on the ventricular musculature which operates to reduce the contraction period; and that, in view of these observations, the hypothesis that under normal conditions the ventricle operates according to a uniform mechanical law, should be subjected to further investigation.

Effect of Sugar on Gastric Secretion.—The authors found that large amounts (100 gm.) of cane sugar or glucose in concentrated solution markedly depressed gastric secretion and delayed evacuation of the stomach. Small amounts (10 gm.) of cane sugar or glucose did not appreciably inhibit either gastric secretion or evacuation. Candies depress secretion and delay evacuation in proportion to their sugar content and the amounts of them ingested. This tendency is influenced, however, by flavoring substances, and particularly by added food ingredients such as milk, eggs or chocolate, which stimulate gastric secretion. Candies should be eaten not before but after meals. Hard candies which must be sucked are preferable to cream candies for children because of the smaller quantity of less concentrated sugar solution derived from them. Soft candies such as bonbons, soft creamy wafers and the interiors of chocolate creams when given in 100 gm. portions exerted the same depressing action on gastric secretion and evacuation as concentrated sugar solutions. Peppermint oil used as a flavoring agent delayed evacuation while a strawberry fruit flavor appeared to accelerate it. Chocolate appeared to stimulate gastric secretion. Stale chocolates remained in the stomach relatively long. Chewing caramels gave rise to a more voluminous gastric secretion than cream candies, but evacuation times were about the same. Salt water taffy gave rise to less secretion, while gum drops left the stomach rapidly with little acid production. Plain marshmallows remained in the stomach rather long, but after being

toasted these confections left the stomach rapidly and gave rise to high intragastric acidities. Licorice gave rise to a fairly abundant secretion and remained in the stomach for nearly three hours. Sugared or buttered popcorn developed a moderate acidity and left the stomach rather quickly. The addition of honey to bread did not delay evacuation, although acid production was somewhat depressed.

Effect of Pituitary on Thyroidectomized Animals.—Larson's experiments showed that the effect of administration of anterior lobe of the pituitary to thyroidectomized rats tends to prolong life and to accelerate growth. This confirms the results reported in a previous paper. Pituitary feeding also noticeably increases the rate of growth in normal rats. Anterior lobe seems to exert more influence on the growth of the normal males than that of the normal females.

Vitamins in Thyroid.—It was found by Seaman that the thyroid gland, as well as other tissues of the body, contains water-soluble vitamins, the property being demonstrated by the curative action on polyneuritic pigeons.

Alkali Reserve in Surgical Shock.—Four general types of shock were made out by Raymund ranging from the more severe characterized by sudden onset and death, to that in which few or none of the cardinal signs of shock were observed. The average normal alkali reserve of the venous plasma in the dog was found to be 43.4 volumes per cent., sixty-eight determinations. The values ranged from 32.4 volumes per cent. to 59.5. In dogs under ether anesthesia the mean value fell to 33.9 volumes per cent. As anesthesia was protracted the mean alkali reserve fell to 28.0 volumes per cent. (forty-five minutes to two hours) and finally to 26.1 volumes per cent. (two to four hours). As etherization was continued beyond this point the mean fall in alkali reserve per unit of time was seen to decrease. When shock ensued suddenly the fall in the alkali reserve of the plasma was relatively insignificant. When shock was late in appearing the plasma might show a high alkali reserve for some time after the animal had become practically moribund. There was apparently no correlation between the type of shock and the degree of alkali depletion. The condition of the animal could not be gaged by its alkali reserve. In several experiments it was found that the alkali reserve of the plasma and of the whole blood fell no lower in profound shock than in aseptic ether controls performed on the same dogs a week previous to the experiment, and from which they recovered rapidly and completely. If there is a critical level of alkali reserve it was not discovered. Intravenous injections of fourth-normal hydrochloric acid and of isotonic acid phosphate solutions did not produce shock or anything resembling this condition in either dogs or cats.

American Journal of Roentgenology, New York

July, 1920, 7, No. 7

Use of Buried Emanation in Treatment of Malignant Tumors. H. H. Janeway, New Yor.—p. 325.
A Traveling Foreign Body. E. C. Koenig, Buffalo.—p. 327.
Treatment of Recurrences and Metastases from Carcinoma of Breast by Radium and Roentgen Rays. G. E. Pfahler, Philadelphia.—p. 328.
Congenital (Hereditary) Absence of Middle Joint of Little Finger. T. C. Bonney, Aberdeen, S. D.—p. 336.
Treatment of Angiomas with Radium. W. S. Newcomet, Philadelphia.—p. 337.
Useful Attachment to a Bowen Developing Tank. A. J. Quimby, New York.—p. 345.
Osteochondral Trophopathy of Hip-Joint. Legg's' Disease. Report of Four Cases. W. E. Reiley, Clearfield, Pa.—p. 347.
Fractures of Bones of Face. C. F. Bowen, Columbus, Ohio.—p. 350.
Teleroentgenography of Sella Turcica. C. H. Jewett, Clifton Springs, N. Y.—p. 352.
*Unusual Gastric Polyp. H. E. Ruggles, San Francisco.—p. 356.
Word to Roentgen Therapeutist. C. A. Simpson, Washington, D. C.—p. 357.

Polyp of Stomach.—In Ruggles' case the striking feature was an unusual resemblance to carcinoma both clinically and roentgenologically. A man, aged 48, complained of fulness, gas, pressure in the upper epigastrium, belching, and constipation for the past eight months. There was never any severe pain. The sense of pressure was worse before meals and disappeared for an hour after eating, and he never vomited in spite of efforts to do so. He lost 30 pounds in weight during this time. Physical examination was negative. Gastric analysis showed a low acidity. Blood was constantly present in the stomach contents and stools. There was a slight secondary anemia. The roentgen-ray examination showed a defect along the great curvature, with a break in the gastric wall involving a quarter of its extent, giving the appearance of a somewhat lobulated mass. It was constant in all positions. Peristaltic waves did not pass through this area. There was no gastric residue at six hours, or other evidence of pathology in the gastro-intestinal tract. Operation showed a mass in the middle third of the stomach which proved to be a typical papilloma.

American Review of Tuberculosis, Baltimore

August, 1920, 4, No. 6

*Classification of Pulmonary Tuberculosis Based on Symptoms and Physical and Roentgen-Ray Findings. F. H. Heise and H. L. Sampson, Trudeau, N. Y.—p. 417.
*Classification of Pulmonary Tuberculosis as Modified by Stereoscopic Roentgenograms. B. H. Waters and J. B. Amberson, Jr., Loomis, N. Y.—p. 424.
*Intestinal Tuberculosis. R. C. Paterson, Saranac Lake, N. Y.—p. 433.
*Occurrence of Intestinal Tuberculosis in Patients with Pulmonary Tuberculosis at Trudeau Sanatorium. L. Brown, H. L. Sampson and F. H. Heise, Trudeau, N. Y.—p. 451.
Functional Cardiovascular Disturbances in Tuberculosis. E. P. Boas, New York.—p. 455.
*Studies on Inhibitory Action of Sodium Cinnamate in Tuberculosis. H. J. Corper, H. Gauss and W. A. Gekler, Denver.—p. 464.
Case of Pulmonary Tuberculosis with Onset in Lower and Spread to Upper Lobe. I. S. Kahn, San Antonio, Texas.—p. 474.
Spontaneous Pneumothorax Following Artificial Pneumothorax. I. S. Kahn, San Antonio, Texas.—p. 477.

Value of Roentgenograms in Classification of Tuberculosis.—The authors suggest that the classification of tuberculosis based primarily on the extent of pulmonary disease, should rest not only on the notoriously uncertain physical signs, but also on the extent of disease as shown by roentgenograms. The plan is outlined.

Stereoroentgenograms in Classification of Tuberculosis.—Waters and Amberson are convinced that stereoroentgenograms are indispensable in determining accurately the anatomic distribution and pathologic character of the more advanced pulmonary lesions of tuberculosis, and that frequently enough, to be of the greatest value not only in guiding the management of patients but also in determining the formal classification of cases, the stereoroentgenogram clearly pictures conditions which physical examination entirely fails to indicate or very imperfectly discloses.

Intestinal Tuberculosis.—Hypermotility, ileac stasis and filling defects make up what Paterson considers a triad of appearances which are indicative of ulceration of the cecum and ascending colon. There is usually a combination of these but any one alone is suggestive. Intestinal tuberculosis may and does occur as a complication in all stages of pulmonary tuberculosis, incipient as well as advanced. Early diagnosis is possible in many cases and has been particularly aided by roentgen-ray examinations. Spontaneous recovery has been known to occur in a few cases. Surgery offers the greatest hope in treatment but the cases for operation must be selected carefully. The condition of the lungs is as important as the condition of the intestines in deciding for or against operation and in prognosis. There is as yet no means of accurately estimating the extent of intestinal disease, and for this reason operation must always be more or less exploratory.

Intestinal Tuberculosis with Pulmonary Tuberculosis.—In a series of eighty-nine consecutive routine examinations tuberculous colitis was diagnosed as positive in four and as doubtfully positive in two cases. Thirteen per cent. of the patients at the Trudeau Sanatorium are discharged unimproved. The use of carmin was found to be no help in determining the presence of hypermotility in tuberculous colitis.

Sodium Cinnamate in Tuberculosis.—Corper and others determined that repurified sodium cinnamate, in concentrations up to 2 per cent. has no tuberculocidal action within three days, but is distinctly inhibitory to human tubercle bacilli in 5 per cent. glycerin agar in a concentration of 0.05 per cent., while in rabbit blood medium, both fresh and inspissated, it is inhibitory only in a concentration of about 0.2 per cent. By continuous intravenous injection of a 2.5 per cent. solution of pure sodium cinnamate a concentration of

from 0.08 to 0.16 per cent. of the blood can be maintained for a period of eighty-three hours in the rabbit. On account of its hemolytic action when administered over a prolonged period of time (exceeding three days) sodium cinnamate cannot be used as an inhibitory agent in tuberculosis.

Annals of Otology, Rhinology and Laryngology, St. Louis

March, 1920, **29**, No. 1

Walling off Subarachnoid Spaces; Application to Treatment of Cerebral and Cerebellar Abscess of Otitic Origin, and, in General, to Surgery of Brain. F. Lemaitre, Paris.—p. 1.
Leukoplakia Laryngis. N. H. Pierce, Chicago.—p. 33.
Hemophiliac Type Hemorrhage; Treatment by Transfusion. A. A. Hayden, Chicago.—p. 37.
Otolaryngologic Features of the Influenza Epidemic at Camp Hancock, Georgia, September-December, 1918. G. Petteroff, Philadelphia, and W. J. Rideout, Freeport, Ill.—p. 44.
Extradural Irritation and Abscess. R. H. Good, Chicago.—p. 54.
Etiology of Peritonsillar Abscess: Dental Origin. N. Schoolman, Chicago.—p. 59.
Recurrent Calculus of Tonsil; Report of Case. H. L. Swain, New Haven, Conn.—p. 73.
Syphilis Among Negroes of Africa and Its Manifestations in Otorhino-Laryngology. J. N. Roy, Montreal.—p. 79.
Diagnosis and Treatment of Latent Antrum Disease. H. B. Lemere, Omaha.—p. 88.

California State Journal of Medicine, San Francisco

August, 1920, **18**, No. 8

What are You Doing to Defeat Antihealth and Antimedical Legislation? W. C. Alvarez, San Francisco.—p. 290.
*Infant Mortality in San Francisco in 1919. H. Lezynsky and A. Brown, San Francisco.—p. 296.
Treatment of Industrial Disabilities Involving Spinal Column. H. L. Langnecker, San Francisco.—p. 301.
Delayed Ulnar Palsy Following Elbow Injury. W. F. Schaller, San Francisco.—p. 302.
*Treatment of Chronic Amebic Dysentery Cyst Carrier. C. L. McVey, Oakland.—p. 305.
Shortage of Trained Nurses. W. F. McNutt, Sr., Byron.—p. 307.

Reduction of Infant Mortality.—The study made by Lezynsky and Brown shows clearly where the stress must be placed to reduce infant mortality. In view of the fact that syphilis is the contributing or actual cause of many stillborn and premature and debilitated infants, and in view of the fact that the government is asked to spend millions and the state thousands, and at twenty-four centers in California municipal, state subsidized clinics are seeking to control the ravages of syphilis, the authors suggest that the birth certificates be studied and at least that parents should be educated to understand the causal relation between death of the unborn or newborn and parental syphilis. With the state offering free Wassermann tests and larger cities doing the same, there is no financial obstacle to this study. Infant hygiene has taught the value of maternal feeding, clean milk, etc.—but do we teach either enough? A mortality rate of 28 per cent. from gastro-intestinal diseases between 2 and 12 months against none in which bottle babies have been carefully supervised, shows we are not doing enough even on the line. The Children's Health Center of the Association of Collegiate Alumnae has never lost a gastro-intestinal case in all its foundling babies. Again, injuries at birth causing 9 per cent. of 354 stillbirths and 7 per cent. of 219 children dying under 2 weeks of age with 50 per cent. of each group reported as being confined in hospitals, makes a medical mind stop and question. With all the help and convenience and technic controlling the risk of sepsis, are we tending to make surgical interference safer for the mother perhaps, but a jeopardy for the child because more readily undertaken by the obstetrician?

Treatment of Dysentery Carriers.—Emetin hydrochlorid, 1 grain, was administered by McVey hypodermically each morning for six days, and bismuth emetin iodid, 3 grains, was given by mouth at bedtime for twelve days, to thirty-five student carriers. Of this number, ten had a relapse following the first course, four relapsed following the second course; eleven were cured after thirty days' observation, five after sixty days, one after ninety days and four after 120 days.

Bulletin of Johns Hopkins Hospital, Baltimore

August, 1920, **31**, No. 354

*Capillary Poisons and Shock. H. H. Dale, London.—p. 257.
Cardiovascular Reaction to Epinephrin Sensitiveness in Patients with Hypertension. P. W. Clough, Baltimore.—p. 266.
*Clinical Study of Thirty-Nine Cases of Combined Thoracic and Abdominal Wounds. G. J. Heuer, Baltimore.—p. 273.
Natural History of Typhoid Fever in Baltimore, 1851-1919. W. T. Howard, Jr., Baltimore.—p. 276.
Study of Invalid Reaction. E. L. Richards, Baltimore.—p. 286.

Capillary Poisons and Shock.—Whatever further chemical investigation may reveal as to the nature of such substances and their relation to histamin, Dale thinks there can be little doubt that the conception of the capillaries as an actively contractile part of the vascular system, having an intrinsic tone which can be modified either by nervous or chemical influences, is destined in the future to play a part of increasing importance in conceptions of the mechanism by which the blood supply to the tissues is regulated under normal physiologic conditions and of the disturbances by which it is rendered pathologically inadequate.

Mortality of Wounds of Solid and Hollow Abdominal Viscera.—Analyzing the results from the standpoint of known injuries to solid and hollow abdominal viscera, Heuer found that the mortality, when solid abdominal viscera alone are injured, is 40 per cent.; when hollow abdominal viscera are injured, it is 86 per cent.

Colorado Medicine, Denver

August, 1920, **17**, No. 8

*Management of Septic Joints after Method of Willems. C. A. Powers Denver.—p. 204.
Annual Registration of Physicians. D. A. Strickler, Denver.—p. 210.
Fracture of Tibial Spine. S. F. Jones, Denver.—p. 217.
Medical Aids to Surgical Cures. W. M. Dake, Denver.—p. 222.

Willem's Treatment of Septic Joints.—Powers endorses the Willems' method of treatment of septic knee and elbow joints.

Indiana State Medical Association Journal, Ft. Wayne

Aug. 15, 1920, **13**, No. 8

Twilight Sleep. A. R. Barnes, Indianapolis.—p. 259.
The Physician: His Recreations and Vacations. F. B. Wayne, Indianapolis.—p. 263.
Treatment of Syphilis as Practiced in United States Public Health Service Clinics of Indiana. F. W. Cregor, Indianapolis.—p. 266.
Effect of Postoperative Rest on Coordination in Potential Tabetics. S. R. Edwards, Indianapolis.—p. 271.

Journal of Experimental Medicine, Baltimore

Aug. 1, 1920, **32**, No. 2

Method for Fixing Films of Human Blood Cells During Ameboid Movement of Leukocytes and Thrombocytes. M. A. Van Herwerden, Utrecht, Holland.—p. 135.
*Segmenting Tertian Malarial Parasites on Red Corpuscles Showing Little or No Loss of Hemoglobin Substance, Evidence of Migration. M. R. Lawson, New London, Conn.—p. 139.
Blackhead in Chickens and Its Experimental Production by Feeding Embryonated Eggs of Heterakis Papillosa. T. Smith and H. W. Graybill, Princeton, N. J.—p. 143.
*Early Changes Following Injection of Tubercle Bacilli into Metaphysis of Long Bones of Animals. J. Oliver, San Francisco.—p. 153.
*Importance of Blood Groups in Complement Fixation Reactions. W. C. Williams, Washington, D. C.—p. 159.
*Experiments on Production of Specific Antiserums for Infections of Unknown Cause. G. W. Wilson and J. Oliver, San Francisco.—p. 183.
*Effect of Intrabronchial Insufflation of Acid. M. C. Winternitz, G. H. Smith and F. P. McNamara, New Haven, Conn.—p. 199.
*Epithelial Proliferation Following Intrabronchial Insufflation of Acid M. C. Winternitz, G. H. Smith and F. P. McNamara, New Haven, Conn.—p. 205.
*Production of Pulmonary Infarcts by Insufflation of Acid. M. C. Winternitz, G. H. Smith and F. P. McNamara, New Haven, Conn.—p. 211.
Study of Bacillus Pyogenes. J. H. Brown and M. L. Orcutt, Princeton, N. J.—p. 219.
Biliary Factor in Liver Lesions. P. Rous and L. D. Larimore, New York.—p. 249.

Destruction of Erythrocytes by Malaria Parasites.—Lawson's researches have shown that malarial parasites destroy more than one red corpuscle, migrating to another as soon as one is destroyed. Pigmented segmenting parasites attached to red corpuscles whose hemoglobin is intact or nearly so are prima facie evidence of migration. The young parasites resulting from the segmenting bodies attached to healthy red corpuscles usually attach themselves independently to the infected corpuscle and remain there until the corpuscle is destroyed.

Effect of Tubercle Bacilli on Bone Metaphysis.—In Oliver's work rabbits were given 20 c.c. of a 1 per cent. solution of

trypan blue intravenously, and two days later, a trephine opening was made in the metaphysis of the tibia and from one to two drops of a physiologic sodium chlorid solution emulsion of bovine tubercle bacilli were injected into the marrow. Similar experiments were made with guinea-pigs and tubercle bacilli of the human type. After from three to nine days, the animals were killed and portions of the bone removed and fixed in 10 per cent. liquor formaldehydi. The earliest changes were observed three days following the operation. No lesion could be seen in the gross, and but little change was observed in sections with a low magnification. With a higher magnification it was seen that a large number of the leukocytes showed evidences of nuclear degeneration, while the reticulo-endothelial cells contained two or more nuclei, and instead of being stellate in shape as normally, were now rounded and lay free in the sinuses of the marrow. Another appearance noted in these cells was the presence of clear areas free from dye granules which showed no coloration with the counterstain. These were interpreted as vacuoles, and in sections stained for tubercle bacilli it was possible to demonstrate in them one or more acid-fast bacilli. With an increase in the number of bacilli in the cell there was a corresponding decrease in the number of dye granules.

Blood Groups and Complement Fixation.—The presence of a natural antihuman hemolysin, active only against Group I and Group II cells, was demonstrated by Williams in more than fifty guinea-pigs, obtained from different sections of the surrounding country. It was shown that, in a majority of the serums tested, this hemolysin would be a contributing factor to an excess of amboceptor in the reaction, in the quantities of complement used in an antihuman complement fixation reaction. The hemolysin is specific, in as far as it can be absorbed with either Group I or Group II cells, but cannot be absorbed with Group III or Group IV cells. In endeavoring to determine the effect of the isohemolysins in human serum various degrees of hemolysis were obtained with all but two serums against cell suspensions from Groups I, II and III, but no hemolysis was obtained with any serum against a Group IV cell suspension. The importance of the human isohemolysins and the natural antihuman hemolysin in complement was demonstrated by performing complement fixation tests on twenty-six human serums cell suspensions of all four human groups for each serum tested being used. A marked variation in the reaction occurred with a large percentage of the serums tested. That the isohemolysins, alone, in human serum are of importance in the reaction was shown by running complement fixation tests on seventeen human serums with the four group cell suspensions and complement from which the natural antihuman hemolysin had been absorbed. Results showed a much weaker reaction, in a large number of the serums, with Group I, Group II and Group III cells than with Group IV cells. Experiments to determine a relation between the human blood groups and natural antisheep hemolysin present in human serum gave negative results. Tests were made for natural antisheep hemolysin in guinea-pig serum. The serum from sixteen different guinea-pigs was tested against a total of twenty-one sheep cell suspensions. A natural antisheep hemolysin was present in all the guinea-pigs tested against one of the sheep cell suspensions. The same guinea-pigs tested against the other sheep cell suspensions failed to show any hemolysis.

Specific Antiserums for Obscure Infections.—Wilson and Oliver agree with Pearce that a serum highly injurious to the kidney of dogs can be produced by the immunization of rabbits with washed renal tissue of the dog. The histologic findings are striking and characteristic, the most noteworthy being a glomerular lesion of special type. The renal changes noted by the authors differed much from those Pearce described.

Experimental Lung Pathology Caused by Gases.—Intrabronchial insufflation of weak solutions of hydrochloric acid, from 0.1 to 0.25 per cent. in rabbits caused an inflammatory process which resembles that encountered in influenza and after the inhalation of toxic gases. There are intense edema and congestion of the lung with hemorrhage, dilatation of the alveolar ducts and bronchioles, hyaline necrosis of the epithelium of these structures, and lobular, pseudolobular, and even lobar types of consolidation, which are more frequently serofibrinous but may be hemorrhagic or even purulent.

Repair of Experimental Lung Lesions.—The damage caused by the introduction of acid into the pulmonary parenchyma is repaired rapidly. The depth of the necrosis determines which elements will participate in the repair. If epithelium alone is injured, epithelium alone takes part in the repair. When the damage involves the deeper tissue, organization by granulation competes with and impedes the development of the epithelium. An overproduction of the epithelium occurs and may form bronchiolar polypi or extend into the peribronchial tissue.

Experimental Lung Infarcts.—Intrabronchial insufflation of acid causes immediate necrosis of the walls of many alveoli. Thrombosis of the alveolar vessels is an associated phenomenon. When a large number of vessels becomes affected, a clot propagates rapidly into the larger supplying vessels. The resulting lesion is indistinguishable from a hemorrhagic infarct. The infarct-like areas so frequently encountered in influenzal pneumonia, it is not unlikely, have their origin in a similar process. Infarction depends not only on thrombosis or embolism of the large vessels, but may be initiated by extensive damage to the capillary bed. By this process infarcts may form in organs which are normally protected by collateral circulation.

Journal of Orthopaedic Surgery, Lincoln, Nebr.

August, 1920, 2, No. 8

Injuries to Sesamoid Bones of Great Toe. A. H. Freiberg, Cincinnati. —p. 453.
Jones Operation for Ankylosis of Subdeltoid Bursitis. W. Blanchard, Chicago.—p. 466.
Osteomyelitis. F. C. Kidner.—p. 470.
Nerve Lesions Following Common Types of Back Strain and Their Relation to Prognosis of Disability. H. W. Wright, San Francisco. —p. 477.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

July, 1920, 15, No. 5

*Action of Chloral on Pupil. E. G. Hyatt, H. McGuigan and F. A. Rettig, Chicago.—p. 415.
*Effect of High Temperature on Action and Toxicity of Digitalis. A. D. Hirschfelder, J. Bicek, F. J. Kucera and W. Hanson, Minneapolis.—p. 427.
*Continuous Blood Pressure Tracings in Man: An Apparatus. A. C. Kolis, St. Louis.—p. 433.
*Indirect Method for Determination of Blood Pressure in Unanesthetized Dog. A. C. Kolis, St. Louis.—p. 443.
Quantitative Studies in Chemotherapy. I. Trypanocidal Action of Antimony Compounds. C. Voegtlin and H. W. Smith, Washington, D. C.—p. 453.
Quantitative Studies in Chemotherapy. II. Trypanocidal Action of Arsenic Compounds. C. Voegtlin and H. W. Smith, Washington, D. C.—p. 475.

Action of Chloral on Pupil.—It was found by Hyatt and his associates that large doses of chloral may produce a pin point pupil. No part of the mechanism of the eye peripheral to the ciliary ganglion is directly acted on by the chloral and neither the ciliary or sympathetic ganglions are involved. The action is, therefore, central and due to removal of inhibitory influences which are normally active. Strychnin, caffein, atropin and other centrally acting drugs are antagonistic to the action of chloral.

Action and Toxicity of Digitalis.—The results of these experiments show that although the heart muscle in these cases was free from injury due to the prolonged fever or toxemia, the factor of high temperature alone was sufficient to render it much more susceptible to the effects of digitalis than is the normal heart muscle.

Continuous Blood Pressure Tracings in Man.—An apparatus is described by Kolis with which continuous blood pressure records can be obtained in man. It is comparatively simple in design, necessitating only an electromagnetic valve in addition to ordinary laboratory equipment. Typical tracings obtained with the apparatus are shown and its application to various problems is indicated.

Indirect Determination of Blood Pressure.—The apparatus used by Kolis is a sphygmomanometer equipped with a special type of cuff which permits of compression of the artery

without distortion of the leg, and a new type of sphygmograph of sufficient delicacy to record the pulsations from an artery as small as the femoral artery of the dog.

Kansas Medical Society Journal, Topeka

August, 1920, **20**, No. 8

Obstetric Experiences of Country Physician. O. E. Stevenson Labette.—p. 217.
Tonsillectomies. L. B. Sparata, Kansas City, Kan.—p. 221.
Findings Revealed by Systematic Medical Examination of Parochial School Children in Kansas City, Kan. L. B. Gloyne, Kansas City, Kan.—p. 223.
What Can Be Done for the Paralyzed? With Frænkel Exercises. K. A. Menninger, Topeka.—p. 226.

Nebraska State Medical Journal, Norfolk

August, 1920, **5**, No. 8

Mastoidectomy in Presence of Erysipelas. R. P. Stoops, Camp Pike, Ark.—p. 217.
Responsibility of Oculist to Adult Blind. J. M. Patton, Omaha.—p. 218.
*Experimental Work with Sodium Cacodylate on Athreptic Infants. F. Clarke and A. Dow, Omaha.—p. 222.
Abdominal Surgery Under Nitrous Oxid and Oxygen. W. H. Pruner, Omaha.—p. 224.
Technic for Administration of Nitrous Oxid and Oxygen in Major Surgery. B. H. Harms, Omaha.—p. 228.

Use of Sodium Cacodylate in Athreptic Infants.—From ¼ grain to 1 grain of sodium cacodylate was injected intramuscularly by Clarke and Dow into six infants aged from 6 to 15 months and the effect noted. The percentage of hemoglobin in the blood was uniformly increased. No toxic influence was noted. The infants all showed a substantial gain in weight.

New York State Journal of Medicine

August, 1920, **20**, No. 8

*Dietetic Treatment of Diseases of Upper Gastro-Intestinal Tract. A. F. Chace, New York.—p. 239.
Pharmacology of Drugs Used in Disease of Upper Gastro-Intestinal Tract. W. A. Bastedo, New York.—p. 243.
Practical Chemical Laboratory Examinations in Gastro-Intestinal Diseases. H. F. Shattuck and J. A. Killian, New York.—p. 250.
Significance of Syphilis in Prenatal Care and in Causation of Fetal Death. J. W. Williams, Baltimore.—p. 252.
*Necrotic Fibroids Complicating Pregnancy and Puerperium. G. W. Kosmak, New York.—p. 259.
Serum Sickness and Sudden Death Following Hypodermic Administration of Antitoxin. W. W. Root, Slaterville Springs, N. Y.—p. 264.

Diet in Gastro-Intestinal Disease.—In outlining the dietary treatment of diseases of the upper digestive tract, Chase says that the particular disordered physiology and pathology which is present should be constantly in mind; that is to say, a physician should consider first the effect of any given foodstuff on the secretory function of the stomach—whether it would increase or diminish the acidity; second, the effect of any given foodstuff on the motility of the stomach—whether it would increase or diminish the motility; and third, the effect of any given foodstuff on any pathologic lesion of the stomach. The diets prescribed should be so arranged as to adequately supply the caloric needs of the body and contain the essential food elements. A patient weighing 150 pounds, confined to bed, will require 2,000 calories daily to maintain his weight. All diets should be varied, the patient not knowing of what his next meal is going to consist, and above all, that the food should be made palatable.

Necrotic Fibroids Complicating Pregnancy.—It is emphasized by Kosmak that patients with myomatous tumors of the uterus associated with pregnancy must be watched carefully for evidences of local necrosis during the entire period of pregnancy and the puerperium, as the breaking down of the tumor may occur at any time during the period noted. If necrosis is present in such cases the possibility of operation must be considered. Exploratory laparotomy under deep anesthesia with enucleation of the growth and careful suture of the uterine wall can be carried out without extensive hemorrhage, producing abortion or premature delivery, if the patient is kept well narcotized after operation. Although recommended by various authors, Polak says hysterectomy need not always be done. Even if abortion follows operation, the uterus will be left for possible future pregnancies. Uterine myomas undergoing degeneration during the puerperium, as shown by local pain and tenderness, elevation of temperature, continuous red lochia and possible signs of peritonitis, should likewise be considered for exploratory operation, in the hope that the tumor may be enucleated before perforation of its capsule takes place. In the case of pedunculated growths, this procedure must likewise be followed. With multiple fibroids, hysterectomy must often be considered.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Brain, London

July, 1920, **43**, Part 2

*Aphasia and Kindred Disorders of Speech. H. Head.—p. 87.
*Congenital Familial Spinal Muscular Atrophies and Their Relation to Amyotonia Congenita. K. H. Krabbe.—p. 166.

Aphasia.—The results set forth by Head are based mainly on the investigation of young men suffering from gunshot wounds in various portions of the head. Certain new serial methods of examination have been adopted; these make it possible to utilize the inconstant answers, characteristic of all cortical lesions, which are so confusing unless the examination is made in a systematic manner.

Amyotonia Congenita and Familial Spinal Muscular Atrophies.—Krabbe points out that amyotonia congenita, according to the original descriptions, seems to be a rather benign and not an hereditary disease, and does not seem to leave any defects in adults. In eight of the eleven cases which have come to necropsy, there have been severe atrophies of the anterior horn cells and muscles. In two of Krabbe's cases of hereditary congenital muscular atrophy corresponding changes were seen. These changes resemble, on the whole, the changes in Werdnig-Hoffmann's progressive muscular atrophy. In six cases reported by Krabbe, the disease clinically resembled closely amyotonia congenita, and only later information showed that it was a familial disease.

British Medical Journal, London

Aug. 21, 1920, **2**, No. 8

*Puerperal Sepsis; Prevention and Treatment. Victor Bonney.—p. 263.
*Surgical Treatment of Puerperal Sepsis. B. Whitehouse.—p. 267.
*Intravenous Protein Therapy in Puerperal Septicemia. A. E. Gow.—p. 268.
Serums and Vaccines in Treatment of Puerperal Infection. H. L. Murray.—p. 269.
*Diastase Content of Urine in Toxemias of Pregnancy. R. L. McKenzie Wallis.—p. 273.
Diagnosis of Spinal Meningeal Tumor and Its Practical Importance. R. T. Williamson.—p. 275.
Occurrence of Urticaria After Specific Fevers. E. Ward.—p. 279.
Skin Apposition Without Superficial Sutures. F. Hathaway.—p. 280.

Puerperal Sepsis.—Puerperal sepsis is a variety of wound infection in the treatment of which Bonney says both operative measures and the direct application of antiseptics have a very limited scope, and efforts to find some other way of efficiently attacking the organisms have been only very partially if at all successful up to now. The conclusion Bonney reaches, therefore, is that as matters stand today, prevention is to be more relied on than cure.

Flavine Intravenously in Puerperal Sepsis.—The possibilities of intravenous medication in those cases of puerperal sepsis where organisms have reached the blood stream—in other words, puerperal septicemia and pyemia are discussed by Whitehouse. For the past twelve months Whitehouse has been employing as a routine a solution of flavine 1 in 1,000 in physiologic sodium chlorid solution intravenously, in cases of puerperal septicemia and pyemia. He administers it in doses from 10 to 15 c.c. intravenously into the median basilic vein, employing the same technic as for arsenical preparations in the treatment of syphilis. As a rule, one injection is given per day, but in severe infections two injections are administered, one in the morning and one in the evening. So far Whitehouse has been greatly pleased with the results and recovery took place on each occasion.

Intravenous Protein Therapy in Puerperal Sepsis.—Ten grams of Witte's peptone, about 5 c.c. of hot freshly distilled

water and the volume made up to 100 c.c. is the solution used by Gow. The first dose which may be given intravenously to a septicemic adult is from 8 to 10 c.c. The quantity is increased by 2 c.c. every other day or so until 16, 18 or 20 c.c. are given at a time. The injection must be made slowly and for that reason Gow employs Nolf's technic using a record syringe and a very fine bore needle—with a No. 28 it is impossible to introduce the solution too quickly. In cases of puerperal septicemia the injection of peptone tends to cause an immediate and rapid fall in blood pressure, a rise in the pulse frequency, and if the patient has a leukocytosis, it rapidly induces a high degree of peripheral leukopenia—all these phenomena being of very short duration. Of these changes, the easiest to record as a guide is the pulse frequency, and while the injection is in progress the nurse keeps count of the radial pulse calling out the number each quarter of a minute. Though he is convinced that peptone is a very valuable adjunct to sensitized vaccine, Gow makes no extravagant claim that it always brings a septicemia to an end, and he cautions any who may look for a dramatic and sustained fall of temperature after its use that most times they will be disappointed.

Blood Diastase in Pregnancy.—The results of his examinations have shown, Wallis states, that in normal pregnancy albumin and casts are absent, and the diastaste content lies within the normal limits, 10 to 33.3 units. The blood analysis shows a normal value for urea—namely 0.02 to 0.05 gm. per cent. The blood sugar is also normal but in cases of glycosuria in pregnancy this is slightly raised. The urea concentration test shows the usual values of 2 per cent. of urea or more. The chief point elicited is the fact that the normal pregnant woman is in a state of unstable equilibrium as regards carbohydrate metabolism, and the least disturbance evokes the production of acetone bodies, and their appearance in the urine as such. In the toxemias of pregnancy the chief feature noted is the very high diastase content of the urine. Apart from diseases of the pancreas this is the only condition where such high values have been found for diastase in the urine. There is no abnormality to be found in the blood in these cases, the urea and sugar content being normal. In contrast to the true toxemias of pregnancy, it is of interest to note that in the much more common neurotic vomiting of pregnancy the urine shows a normal diastase content. Many of these patients are suffering from a chronic parenchymatous nephritis ranging from a mild to a more severe form. The urine shows albumin with very little globulin, casts are generally present, and the diastase content is usually below the normal 10 units. The blood analysis is also of value as the urea content is generally on the high side of normal and in the more severe cases markedly raised. A urea content of over 0.1 gm. per cent. should be regarded as unfavorable and such cases are liable to develop uremia with a fatal termination. The urea concentration test is of value in the mild cases giving one a ready means of assessing the degree of mechanical damage to the kidney.

Bulletin Naval Medical Association of Japan, Tokyo

June, 1920, No. 29

*Effect of Experimental Extirpation of Thyroid Body. M. Ishihara. —p. 1.

A Dwarf Caused by Abnormal Growth of Bones, Chondrodystrophia Foetalis. E. Saiguss.—p. 2.

Effect of Extirpation of Thyroid.—Excision of the thyroid of young rabbits was followed by the enlargement of the thymus gland, Ishihara suggests probably due to a recompensing action existing between these two organs. Metabolism was never interefered with by this extirpation. The degenerated corpuscles of Hassall were seen more frequently in the thymus gland of normal rabbits than in that of the rabbits operated on. The operation was not necessarily followed by enlargement of the pituitary body.

Japan Medical World, Tokyo

July, 1920, 10, No. 30

Vital Fixation of Auricular Organs and Staining of Nerves. F. Tanaka and C. Yoshida.

Experimental Treatment of Tuberculosis with Taulin and Metallic Compound of Tauline. S. Takeoka.

Journal of State Medicine, London

August, 1920, 28, No. 8

After-the-War Labor Conditions and Factory Personnel. T. Oliver. —p. 229.

Economic Aspect of Miners Nystagmus. T. L. Llewellyn.—p. 236.

Lancet, London

Aug. 21, 1920, 2, No. 8

Ambulatory Treatment of Fracture of the Limbs; Tuberculous and Arthritic Disease of Joints. C. A. Hoefticke.—p. 382.

Body and Mind. F. W. Mott.—p. 383.

Some Aspects of Functional Nervous Disease. E. D. Macnamara.—p. 387.

*Diagnosis of Active Pulmonary Tuberculosis. J. B. McDougall.—p. 390.

*Bilharzia Treated with Tartar Emetic. F. G. Cawston.—p. 392.

*Blood and Urine in Pancreatic Disease. P. J. Cammidge, J. A. Cairns Forsyth and H. A. H. Howard.—p. 393.

Antidiuretic Effect of Pituitary Extract in Diabetes Insipidus. M. Davidson.—p. 401.

Leukocyte Count in Determining Activity of Tuberculosis.—With a view to establishing an objective proof of latent activity in the "borderland" type of case McDougall carried out a large number of blood examinations. He found this helpful in guiding to a definite conclusion, one way or another, as to the suitability of a particular case for treatment by graduated rest and exercise. From an analysis of sixty-seven cases in which 150 differential counts of the white cells, together with Arneth counts were made, and of thirty cases in which 250 total counts were estimated, it was evident that if consecutive daily leukocyte counts are made a variation in total numbers of white cells is found in all active cases of pulmonary tuberculosis—a variation in excess of that occurring normally in health. Physical signs in the chest may give little or no help in determining the activity of a lesion. For instance, a cavity in the lung may be followed by pathologic "repair" and clinical quiescence, and in such a case the total leukocyte count may be small, and the Arneth count but slightly altered. Conversely, there may be a definite "leukocyte swing" and a marked "deviation to the left" in cases showing no other objective sign of active disease. The total leukocyte count bears a definite relationship to the acuteness of the lesion in the chest, and the acuteness of the lesion has, in turn, a more or less intimate connection with the presence of organisms other than the tubercle bacillus. The Arneth "deviation to the left" is established in all cases of active disease. The more severe the infection the greater is the deviation to the left. An approximation of the quantitative and qualitative blood picture to the normal is a favorable sign and indicates quiescence.

Tartar Emetic in Bilharziasis.—Cawston's study of a number of bilharzia patients who have undergone a course of treatment by intravenous injections of tartar emetic would appear to show that the best results are obtained when the injections are given on alternate days for most of the time, and the treatment is continued for a complete month. Cawston commences with a quarter grain, and in only one case of idiosyncrasy has he noticed any severe effect from this initial dose. If the solution is absolutely fresh and the injections are given regularly, a total of from 12 to 15 grains would seem to be sufficient to effect a permanent cure in the majority of cases.

Blood and Urine in Disease of Pancreas.—The animal experiments described by Cammidge and others confirm the conclusions arrived at on clinical grounds. In addition they show that the rise in the difference value of the blood resulting from interference with the functions of the pancreas insufficient to produce frank hyperglycemia and glycosuria diminishes as the volume of the gland is further reduced and the percentage of sugar in the blood and the excretion of sugar in the urine rise. The hydrolyzable substance in the blood on which the difference value depends appears to be derived chiefly from the glycogen stores of the liver, and is an intermediate soluble product (dextrin) formed in the conversion of glycogen to sugar. The liver contains an amylolytic ferment which passes into the blood and urine, and it is as a result of its activity that the glycogen of the liver is broken down. The pancreas exerts a restraining influence on the glycolytic ferment of the liver, probably through its internal secretion. Normally, the balance between

the glycolytic ferment of the liver and the internal secretion of the pancreas is maintained in such a way as to keep the percentage of sugar and the difference value of the blood, within well defined limits; when this balance is interfered with abnormal relations result. A relative increase in the pancreatic secretion causes a fall in the percentage of sugar and in the difference value of the blood. A relative diminution in the secretion of the pancreas, with consequent greater liberty of action on the part of the glycolytic ferment of the liver, gives rise in the early stages to an increased formation of the intermediate products of glycogen degradation without any change in the sugar, and in the later stages to an increasing sugar production with a proportional diminution in the intermediate products. The appearance in the blood and urine of intermediate products of carbohydrate metabolism as shown by the difference value of the blood and the iodin coefficient of the urine, indicates a prediabetic condition which, if allowed to progress unchecked, will be followed by hyperglycemia and glycosuria. Incidentally it has been shown that a considerable proportion of a well boiled starch is absorbed into the portal circulation in the form of dextrins and maltose, whereas an uncooked starch enters the portal blood chiefly as dextrose.

Medical Journal of Australia, Sidney

July 10, 1920, **2**, No. 2

Intravenous Injections in the Treatment of Hemorrhage and Shock. A. H. à Court.—p. 25.
Injuries of the Spinal Cord. A. Newton.—p. 30.

July 17, 1920, **2**, No. 3

*Intravenous Injections in Treatment of Hemorrhage and Shock. A. H. à Court.—p. 49.

Transfusion in Shock.—In primary traumatic shock of the most extreme severity and in patients apparently moribund Court has been led by numerous observations to conclude that it is advisable to employ general methods of resuscitation and await, if possible, some evidence of returning animation before commencing transfusion. Otherwise transfusion may be performed in cases where the organism has been damaged beyond hope of recovery and discredit brought on a most valuable therapeutic measure undeservedly.

Bulletins de la Société Médicale des Hôpitaux, Paris

June 4, 1920, **44**, No. 20

*Epidemic Encephalitis. Lesné and others.—pp. 765; 769; 784.
Posttraumatic Osteomas in Muscles. Rathery and Bordet.—p. 772.
*Epinephrin in Vomiting of Pregnancy. Rathery and Bordet.—p. 778.
Congenital Paroxysmal Cyanosis. Variot and Lantuéjoul.—p. 786.

Choreic Form of Epidemic Encephalitis.—Lesné and Langle join Armand-Delille and others who have been emphasizing recently the connection between true chorea and epidemic encephalitis. They report a case of what seemed to be true chorea in a girl of 8 who had had a similar attack three years before. There was no tendency to somnolency or ptosis, but the salivary glands became enlarged and 0.058 and 0.06 per cent. of glucose were found in the lumbar spinal fluid—both characteristic of epidemic encephalitis. This case raised the question of recurrences of encephalitis, and in the discussion that followed, Sicard mentioned that prolonged forms of the epidemic encephalitis are relatively frequent. The persisting symptom or sequel seems to be tenacious, with no tendency to paroxysmal recurrence. In one case the algia in neck and arm has persisted unmodified by all treatment during seven months to date. Eschbach cited a number of cases of apparently true chorea with the somnolency, ptosis and other symptoms of epidemic encephalitis. Briaud and Rouquier reported a case in which, besides the chorea, myoclonia, delirium, hallucinations and high sugar content of the spinal fluid, there were symptoms of diabetes insipidus.

Epinephrin in Uncontrollable Vomiting of Pregnancy.—Rathery and Bordet report a case of serious consequences from incessant vomiting for two months early in pregnancy. Then 250 c.c. of physiologic sodium chlorid solution with 10 drops of epinephrin (1:1,000) were injected subcutaneously, and repeated the next day. The vomiting was arrested at once. The epinephrin was kept up for a week, to a total of 2.5 mg. subcutaneously plus 10 mg. by the mouth. A 40 per cent. solution of glucose was given by the rectum. This experience was duplicated in a second case, the symptoms from autointoxication rapidly subsiding, while the blood pressure was not affected.

Encéphale, Paris

June 10, 1920, **15**, No. 6

*Visceral Innervation During Morbid Depression. J. Eurière and J. Margarot.—p. 361. Begun in No. 5, p. 349.
Tuberculous Meningo-Encephalitis of Base Simulating Lethargic Encephalitis. A. Prince.—p. 384.
*Volitional Associated Movements. Noica (Bucharest).—p. 390.
Hallucination Delirium. P. Quercy.—p. 398.

Autonomic Nervous System in Periods of Anxious Depression.—Eurière and Margarot refer to a morbid condition of apprehension and anxiety recurring at irregular intervals. These "états anxieux" are distinguished by extreme irritability of the sympathetic nervous system, and when they are associated with mental disease, this preponderance of the sympathetic system may be continuous. Their tests of sixty patients of the different types confirm, they say, that this hypertonia of the sympathetic system is unmistakably a constant physiologic substratum of the physical element of anxiety, namely, the anguish, and that the different degrees of the anguish (*angoisse*) parallel the intensity of the sympathicotonia.

Associated Movements.—Noica explains that dissociated movements require an expenditure of force much greater than the associated. Infants with undeveloped pyramidal tracts and adults with disease of these tracts economize force by associated rather than dissociated movements.

Paris Médical

July 17, 1920, **10**, No. 29

*Sugar Versus Salt Solutions for Infusion. A. Richaud.—p. 53.
*Hypertonic Sugar Solution in Nephritis. Rathery and Boucheron.—p. 56.
*Blood Pressure with Intermittent Claudication. J. Heitz.—p. 60.

Sugar Versus Saline Infusion.—Richaud discusses what we know of the general effects of large injections of sodium chlorid solution and of the diuretic action of sugar, and means to increase or reduce it. Each sugar has its special diuretic action which seems to vary inversely to its molecular weight. Sugar solutions are much less toxic than salines, and up to 1,300 c.c. of an isotonic solution of glucose, saccharose or lactose can be injected by the vein. About 47 gm. of glucose or 92.5 gm. of saccharose to the liter is the usual proportion unless the aim is to induce diuresis, in which case 200 or 250 gm. of saccharose to the liter are used. This induces actual dehydration by the profuse diuresis which follows. This explains the extreme thirst and the damage which may result unless the patient is given plenty of fluid to drink. Besides this diuretic action, the sugar tones up the heart and has an antitoxic action. Hence Fleig advises it to promote recovery from an anesthetic.

Sugar Solution in Nephritis.—Rathery and Boucheron warn against hypertonic sugar solution in nephritis with uremia, reporting three cases in which injection by the vein of 250 c.c. of a hypertonic solution of glucose actually reduced the diuresis; the output of urine and of urea, and the total nitrogen content declined, while the uremia became intensified.

Local Blood Pressure with Intermittent Claudication.—Heitz has found that the oscillometer tracings show the particular features of each case in intermittent claudication, and the remissions under treatment with general hygiene, courses of mineral waters, etc., and serve as a guide in treatment and to ward off exacerbations.

July 31, 1920, **10**, No. 31

*Irregular Arrhythmias. R. Lutembacher.—p. 85.
*The Herxheimer Reaction in Syphilis. G. Milian.—p. 91.

Irregular Arrhythmias.—Lutembacher explains that what used to be called perpetual arrhythmia often varies and may be traced to different causes, each calling for different treatment. It may be the result of uncomplicated heart block, or of extrasystoles or auricular flutter. The term "total arrhythmia" should be reserved for the complicated forms of com-

plete arrhythmia, as in this all the properties of the heart are altered.

Drug Activation of Latent Streptococci.—Milian calls attention to a case of what he calls therapeutic microbian biotropism, an erysipelatous dermitis of the breast, with streptococci, developing and flaring up after each injection of arsphenamin until a polyvalent antiserum was injected. This seemed to arrest the biotropism. The Herxheimer reaction was intense each time in the extensive syphilitic lesions in the young woman. The intensity of the visible reaction suggests that analogous reactions occurring in internal organs might readily explain certain phenomena in the course of treatment of syphilis. They teach the importance of pushing the treatment rather than suspending it in such cases, he adds.

Presse Médicale, Paris

July 31, 1920, **28**, No. 53

*The Pilomotor Reflex. A. Thomas.—p. 521.
*Quinin in Auricular Fibrillation and Tachysystole. P. Schrumpf.—p. 524.
*Injections of Ether in Whooping Cough. L. Cheinisse.—p. 526.

Goose-Flesh Reflex.—Thomas discusses what he calls the *répercussivité sympathique*, and the diagnostic import of the variations in the pilomotor reflex in particular.

Quinin in Auricular Fibrillation and Tachysystole.—Schrumpf admits that quinin cannot be relied on to cure auricular fibrillation and tachysystole when once fully established; but given during a brief, transient attack it seems to have a curative action. With large doses of digitalis, the action of both is enhanced. This combination is especially advantageous in the prefibrillation stage, warding off or at least retarding the onset of the fibrillation.

Ether in Whooping Cough.—Cheinisse summarizes the experiences that have been published to date with intramuscular injection of 2 c.c. of ether. They are almost exclusively favorable. The injections are made in the buttocks, and it is a question whether the ether acts by attenuating the tendency to spasms or by direct disinfection of the tissues. Audrain never had occasion to give more than three of the injections in his cases.

Revue Médicale de la Suisse Romande, Geneva

July, 1920, **40**, No. 7

*Tests of Kidney Function. C. Pettavel.—p. 397.
Treatment of Multiple Fractures of Both Legs. C. Perret.—p. 415.
Disordered Heart Action in Soldiers. I. E. Thomas.—p. 422.
*Diverticuli of Large Intestine. G. Patry.—p. 443.
*Helminths and Appendicitis. Chassot.—p. 449.
Peritoneal Menstruation. Chassot.—p. 453.
*Ether by the Rectum. R. Martin.—p. 456.

Examination of Renal Function.—Pettavel reviews the various methods in vogue for estimating the functional capacity of the kidneys, saying that all agree in the importance of the output of urea, but that opinions differ as to whether the concentration alone or the actual output is most significant. Some specialists rely on the phlorizin glycosuria test, while others say it represents abnormal functioning of the kidneys and throws no light on natural conditions. Comparison of the findings with different tests gives the surgeon ample confidence for his work.

Diverticulitis.—Patry remarks that diverticuli of the large intestine are often overlooked at necropsy as they are small and concealed by adipose tissue. Intra-intestinal pressure is probably a factor in their development and enlargement. Feces arrested in them sets up irritation, with resulting adhesive peritonitis and fistula, the whole suggesting cancer in the lower left abdomen, especially in men of about 40 with chronic constipation. The sigmoid flexure should always be examined at gynecologic operations, as the intestinal lesion may be silent although the primary source of the pelvic disease. Roux has reported a case which simulated appendicitis on the left side, particularly on account of existing situs inversus. Other Swiss writers have published a few cases, and the first description of the clinical picture was published by Mayor in the *Revue* in 1893, but as his patients all recovered without an operation, he did not trace the clinical picture to its source but described it as perisigmoiditis.

Helminths and Appendicitis.—Nine pin-worms were found in the healthy appendix, removed on account of symptoms of grave acute appendicitis in a girl of 17. Chassot's review of the literature shows, he says, that helminths are not found in the diseased appendix—only when normal conditions prevail—but they may induce symptoms resembling those of an acute inflammatory process. Riff found oxyurids in 30 per cent. of 152 cases of supposed appendicitis, and in 75 per cent. of 63 cases in children. In 15 per cent. of Sagredo's 41 cases there was actual appendicitis in addition to the presence of the oxyuris. It is important, however, to realize that the pinworms may be responsible for what seems to be appendicitis. Two children in the family of the case first mentioned developed similar, but milder, symptoms not long after, and Chassot felt justified in restricting his intervention to measures against the helminthiasis, and this brought a speedy cure.

Ether by the Rectum.—Martin states that the anesthesia lasted two hours in two cases he reports, and it proved very satisfactory, but transient rectitis followed in both, and one woman of 30 stopped breathing one minute after she had been changed to the Trendelenburg position and the operation was about to begin. Artificial respiration had to be kept up for over three and a half hours before she was breathing spontaneously again. The heart action kept good throughout; 75 c.c. of ether and 25 c.c. of oil had been given by the rectum. Wiart has compiled a list of 2,500 cases in which ether was given by the rectum, and there were eight fatalities and eight serious mishaps that barely escaped a fatal termination.

Revue Neurologique, Paris

April, 1920, **27**, No. 4

*The Function of the Vestibule. P. Cantaloube.—p. 305.
*Permeability of the Choroid Plexus. A. Barbé.—p. 314.
*Tabetic Ataxia. Noica.—p. 320.
Tonus and Motor Function in Oculomotor Derangement. A. Litvak.—p. 331.
Recurring Dislocation of Jaw from Bullet Close to Angle. P. Courbon.—p. 337.
*Spontaneous Coagulation of Spinal Fluid. Lantuéjoul.—p. 339.

Mechanism of Function of Vestibule.—Cantaloube theorizes that the two faces of the crista acustica of the ampulla of the different semicircular canals posses antagonistic functions, and presents anatomic and physiologic data to confirm this view. Among his arguments are some drawn from observation of nystagmus and of the movements of the head with inverse rotation of the eyes. He remarks in conclusion that underlying all the complexity of the vestibular apparatus we find the same simple law that regulates vision, as Grasset has conceived and developed it.

Permeability of the Choroid Plexus.—Barbé has been experimenting with the choroid plexus from cadavers, and found that it was most permeable for human blood serum. The permeability was less in the aged and in those with organic nervous disease, especially epilepsy. General paresis seemed to be an exception to this rule, increasing the permeability.

Tabetic Ataxia.—Noica discusses tabetic pseudo-athetosis, the bilateral combined flexion of thigh and trunk in tabetics, and the associated muscular spasm during exertion.

Coagulation of Spinal Fluid.—Lantuéjoul reviews the literature on spontaneous and massive coagulation of the lumbar spinal fluid. Of the 38 cases he has compiled, there was meningitis in 5 and paraplegia in 28. Spinal fluid drawn by puncture at different levels was normal at the higher levels. Of the total 38 persons, 14 have died, and only 5 can be considered cured. Massive coagulation of spinal puncture fluid must therefore be considered a sign indicating a grave prognosis. Xanthochromia was pronounced in all but one case. The coagulation is due to an often enormous increase in the albumin content and to the presence of an abnormal constituent, namely, fibrin. Necropsy in 11 of the cases showed that the lower portion of the subarachnoid space was shut off either by the meninges growing together or by compression. The repeated lumbar punctures gave great relief. Froin was the first to call attention to this massive coagulation of the spinal fluid.

Schweizer Archiv f. Neurol. und Psychiatrie, Zurich

1920, 6, No. 2

*Uremia. P. v. Monakow.—p. 183.
Comparative Anatomy of Optic Nerve. M. Minkowski.—p. 201. Cont'd.
Pathogenesis of Reflex Nervous Disturbances. H. Brunschweiler.—p. 253.
Epidemiology of Lethargic Encephalitis. C. Economo.—p. 276.
Psychology of Traumatic Neuroses. H. Meier-Müller.—p. 295. Cont'd.
The Individual Character and the Type of Insanity. W. Boven.—p. 317.

Uremia.—Von Monakow recalls that there are no characteristic signs of the uremic nature of a hemiplegia or other clinical picture except the knowledge of existing kidney disease. He protests against the assumption that the residual nitrogen is a reliable index of kidney functioning, and also that edema of the brain alone is able to induce convulsions. For this, some toxic factor is indispensable. With mechanical retention of urine, cerebral focal symptoms are rare, and when they occur they are variable and fleeting. With chronic nephritis, uremic coma is liable to develop suddenly without any apparent special factors at the moment to bring it on. These and other data cited suggest that something beyond the mere retention of the elements of urine is responsible for uremic coma, some factor independent of the kidneys. This factor, he thinks, is the sudden yielding of the choroid plexus to allow passage of injurious substances. As long as the choroid plexus is normal, it serves as a protecting membrane to ward off toxic fluid from the brain. When it becomes abnormally permeable, the brain is flooded with the noxious elements circulating in the blood stream. He gives photomicrograms from two cases, showing the pronounced fibrous and other changes in the choroid plexus found after death in uremic coma.

Annali d'Igiene, Rome

February, 1920, 30, No. 2

Microscopy of Epidemic Encephalitis. G. Volpino and P. Desderi.—p. 81.
Stamping Out Variola at Milan. G. B. Uffreduzzi.—p. 85.
*Action of Alcohol on the Organism. V. Ducceschi.—p. 91.

Action of Alcohol on Blood of Dogs.—Ducceschi reports that the cholesterin and fatty acids in the blood of dogs showed a marked increase under the influence of alcohol, while the total fat in the liver increased by 300 per cent.

Pediatria, Naples

Aug. 1, 1920, 28, No. 15

*Vaccine Treatment of Typhoid in Children. R. Kharina-Marinucci.—p. 689; Idem. F. Luna.—p. 706.
Leishmaniasis in Naples Children. N. Javarone.—p. 716.

Vaccine Treatment of Typhoid in Children.—Kharina Marinucci gives the details of eighty cases of typhoid or paratyphoid in children given treatment with vaccine. There were only three deaths and these occurred at once, before the vaccine had had time to display its action. In all the other cases the beneficial effect from the vaccine was beyond question. A single injection sometimes brought defervescence, but as a rule from three to five injections were required, given on alternate days. The vaccine did not seem to influence intestinal hemorrhage except by improving the general health, but her conclusion on the whole is that it is the best means for specific treatment of typhoid, either by the vein or intramuscular injection. Luna's four years of experience with it in a total of 175 children with typhoid shows that improvement followed it in all, and recovery occurred in ten days on an average, the range being from two to thirty-seven days, even including all the complications. Everything observed testifies, she reiterates, to a true and specific immunizing reaction, such as it is impossible to obtain with a heterologous protein. The reaction is most rapid and pronounced by the vein, and is least with subcutaneous injection. The average series was five injections by this route (total 75 c.c. vaccine); four with intramuscular injection (5.15 c.c.) and three by the vein (1.1 c.c.). The vaccines used (Di Cristina or Caronia) are less toxic than those made by other methods, while the curative action is more pronounced. The vaccines are the inactivated products of lysis of the bacteria. The technic for preparing them is described.

Policlinico, Rome

July 26, 1920, 27, No. 30

*Auscultation as Guide in Artificial Pneumothorax. L. Borelli.—p. 787.
*Hypochlorite Salve. G. Baggio.—p. 790.
Substitute for Giemsa Stain. B. Polettini.—p. 791.
Recent Progress in Venereal Diseases. Rusca.—p. 793.

Auscultation of the Mouth as Guide for Artificial Pneumothorax.—Borelli's experience has demonstrated that by listening to the oral râles the physician may be able to detect the first signs that the induced pneumothorax is waning.

Useful Salve.—Baggio has found extremely useful to protect the skin around a suppurating lesion, promote healing and keep gauze from sticking, a white salve made with 1 part of sodium hypochlorite; 1.5 parts of boric acid; 0.5 parts of camphor; 2 parts each of zinc oxid and hydrous wool fat and 3 parts of petrolatum.

Riforma Medica, Naples

June 26, 1920, 36, No. 26

*Improved Sphygmomanometer. G. Galeotti.—p. 581.
Modification of Sexual Impulses in the Wounded. V. Desogus.—p. 583.
*Radium Treatment of Cancer of Mouth and Throat. M. Spinelli.—p. 585.
Homosexuality and Hermaphroditism. M. Carrara.—p. 588.
The Outlook for Surgery of Vessels. E. Aievoli.—p. 589.

Improved Sphygmomanometer.—With the simple instrument of which Galeotti gives an illustrated description, it is possible to record on the same chart the minimal and the maximal blood pressure, which aids materially in estimation of the blood pressure. It is constructed on the same principle as the Pachon oscillometer, which, he says, is outranking all others at present, but it has the advantage over the Pachon that it is not necessary to interrupt the tracing to record the range of the oscillations. He adds that the Pachon may yield an error of 47 per cent. in the maximal pressure reading, but never more than 5 per cent. in the minimal. These figures were obtained by Dehon and Heitz on comparing the Pachon findings with the actual blood pressure at amputations, ascertained by inserting a manometer in the central stump of the severed artery.

Radium Treatment of Cancer of Mouth and Pharynx.—Spinelli remarks that, to judge from his personal experience, there are no cancers in this region which are not amenable to radium treatment. He describes with favorable comment a frame for holding the radium tube in the mouth.

Tumori, Rome

April 25, 1920, 7, No. 2

*Cultivation of Cancer in Vitro. E. Veratti.—p. 81.
*Cystic Adenoid Epithelioma. L. Martinotti.—p. 92.
Hemangioma of Abdominal Wall. G. Angioni.—p. 121.
Osteoblastic Cavernoma of Cerebral Pia Mater. E. de Benedetti.—p. 141.

Cultivation of Cancer in Vitro.—Veratti gives plates showing the findings with cultivation outside of the body of mammary cancer cells from a dog.

Cystic Adenoid Epithelioma.—In Martinotti's case almost the entire face of the woman of 44 was covered with the small cystic adenoid epitheliomas. The multiple symmetrical lesions had begun to develop about twenty years before. The literature on this form of dermatosis is reviewed.

Anales de la Facultad de Medicina, Montevideo

November, 1919, 4, No. 11

Chemical and Physical Symptomatology of the Liver. A. Chauffard.—p. 715.
Pathology and Treatment of Dyspepsia. Robin.—p. 726.
Surgery of the Stomach. V. Pauchet.—p. 742.
Abdominal Hysterectomy. J. L. Faure.—p. 747.
Some Current Urologic Operations. F. Legueu.—p. 754.
Repair of Vesicovaginal Fistula, etc. Marion.—p. 765.
Surgery of the Limbs. A. Mouchet.—p. 773.
Physiotherapy Service at Val-de-Grâce. P. Kouindjy.—p. 782.
Ventilation in Contagious Wards. J. Renault.—p. 786.

French Medicine and Surgery.—This issue of the *Anales* is devoted to nine lectures delivered at Paris in 1918 by eminent French internists and surgeons in honor of the Uruguayan physicians and surgeons who at that time were lending their services to France.

Archivós Españoles de Pediatría, Madrid

May, 1920, 4, No. 5

Clinical Picture of Hydatid Cyst in Liver in Children. E. Nogueras Coronas.—p. 257.
*Pneumococcus Tonsilitis. A. Aurelio Ramos.—p. 273.

Pneumococcus Tonsilitis.—Ramos is convinced that this pathologic condition is more frequent than generally recognized. He relates some typical examples; in some the infection finally involved the bronchi and lungs. In one child of 2 the tonsillitis persisted with fever and great enlargement of glands for ten days, and then slowly retrogressed. There was a milky exudate on the tonsils tending to confluence. One woman of 44 developed a tender spot in the right thyrohyoid space, and the laryngoscope revealed a white exudate over the right arytenoid, and the microscope disclosed the pneumococcus. At the same time a carotid gland on the right side swelled and grew very painful. Mercury and iodid had no influence on the evolution of the membranous process. It began to retrogress the tenth day and recovery was complete a week later. The false membrane is whiter than the diphtheric but otherwise resembles it. Ramos used antipneumococcus serum but the benefit seemed to be transient. Moist heat and rest relieve, with the other measures useful in infectious sore throat. The patients seldom apply for medical aid until surprised by the long persistence of their sore throat; it lasts up to fourteen days at least. If there are no complications, the infection seems to subside harmlessly.

Brazil-Medico, Rio de Janeiro

June 5, 1920, 34, No. 23

Botulinus Poisoning or Lethargic Encephalitis? C. de Rezende.—p. 351.

Revista de la Asoc. Médica Argentina, Buenos Aires

December, 1919, 31, No. 182

Pathogenesis of Diabetes. A. Pi y Suñer.—p. 645. Conc'n.
*Lymphogranulomatosis. F. Arrillaga.—p. 664. Conc'n.
*Incontinence of the Pylorus. C. Bonorino Udaondo and others.—p. 714.
Tardy Hereditary Syphilis in Relation to Surgery. D. del Valle, Jr., and R. Donovan.—p. 724.
Hemangio-Endothelioma in Mediastinum with Metastases. N. Romano, F. N. Ruiz and C. P. Waldrop.—p. 748.

Lymphogranulomatosis.—Arrillaga's detailed report of eleven cases is accompanied by colored plates and photomicrographs besides illustrations in the text. Both sexes, and ages from 17 to 45 are represented. The duration of the disease was from one month to eight years in his cases. In one man of 41 the disease proved fatal in four months, during which there was constant and high fever, with leukopeny down to 1,400 whites.

Incontinent Pylorus.—In the case described, the man of 36 had evidently a duodenal ulcer and also acquired syphilis. Improvement was realized under specific treatment, but the pains in the stomach and the occult blood in the stools persisted. Roentgenoscopy showed the pylorus open like a simple tube, the stomach emptying itself at once at every examination with the contrast meal. The man was relieved of all subjective disturbances by a course of medical treatment for the ulcer, and refused an operation to correct the incontinence of the pylorus as he did not feel incommoded thereby.

Revista del Instituto Bacteriológico, Buenos Aires

January, 1920, 2, No. 4

*Normal Beef Serum in Treatment of Anthrax. R. Kraus and J. Bonorino Cuenca.—p. 1.

Normal Beef Serum in Treatment of Anthrax.—The 277 pages of this monograph relate in detail the experiences with normal beef serum in treatment of 380 cases of anthrax under the auspices of the institute, which is part of the public health service. Other cases from other hospitals bring the total to 415, with a total mortality of 4.3 per cent. Omitting the cases of intestinal localization of the anthrax, which are always fatal, the mortality of the 380 series was 3.4 per cent., but including these, it was 6.2 per cent. In the last 180 cases the mortality was 11.6 per cent., or 3.4 per cent., omitting the intestinal cases. Six of the patients with septicemia recovered. Normal beef serum should not be relied on in cases of intestinal anthrax, but it is difficult to differentiate this. The authors say that no symptoms from the digestive tract were apparent in their cases until a day or two before death. The normal serum method was mentioned editorially in THE JOURNAL, Sept. 29, 1917, p. 1085.

Revista Médica del Uruguay, Montevideo

June, 1920, 23, No. 6

Treatment of Hydatid Cysts of the Liver. G. Arrizabalaga.—p. 243.
Diphtheria and Diphtheria Antitoxin in Uruguay. L. Morquio.—p. 260.
*Interstitial and Angular Pregnancy. A. Turenne.—p. 290.

Angular and Interstitial Pregnancy.—Turenne comments on the unreliability of signs of pregnancy in abnormal cases, especially when the ovum is embedded in the intramural portion of the tube or in the angle of the uterus. Rupture is inevitable with the former, the so-called interstitial pregnancy, and the extravasated blood around the ovum makes the tumor very hard, while an ovum in the angle keeps soft. In two cases described, the angular pregnancy was mistaken for an ovarian tumor, and the laparotomy showed a groove between the two halves of the uterus, the chief cause of the blunder. In a third case, the pains and palpation findings suggested pregnancy with myoma, and sudden exacerbation of the pains and symptoms of slight peritoneal irritation, indicating necrobiosis of the myoma, called for laparotomy. In all three cases the pregnancy proceeded unmodified. With interstitial pregnancy, the shape of the uterus grows constantly more abnormal while with an apical pregnancy the abnormal shape at first usually grows more regular. But the reverse was the case in his three experiences. Retention of the placenta, especially with abortion at the third or fourth month, is particularly liable with angular pregnancy. In conclusion he warns to suspect interstitial pregnancy and be prepared for rupture whenever the abnormal shape of the uterus attracts attention.

Semana Médica, Buenos Aires

June 10, 1920, 27, No. 24

*Anatomy and Physiology of Lower Segment of Uterus During Pregnancy. E. A. Boero.—p. 771.
Case of Cephalic Tetanus. N. D. Rosso.—p. 733.
Radium Treatment of Cancer of Uterine Cervix. J. Iribarne.—p. 795.

The Lower Segment of the Uterus.—Boero's extensive article describes with nine illustrations conditions in Bandl's ring and vicinity during pregnancy and parturition, and discusses the causes of dystocia in general.

Deutsche medizinische Wochenschrift, Berlin

March 11, 1920, 46, No. 11

Surgical Treatment of Nephritis in War and Peace. H. Kümmell.—p. 281. Cont'd.
The Present Influenza Epidemic. U. Friedemann.—p. 283.
Relation of Gastric Carcinoma to Gastric Ulcer. Konjetzny.—p. 285.
The Friedmann Tuberculosis Treatment. J. Weicksel.—p. 287.
Bacteriologic Findings in Lethargic Encephalitis. W. Loewenthal.—p. 289.
Significance of Fat in Nutrition of Children. A. Orgler.—p. 290.
Fat as Disturbing Factor in Infant Feeding. Kleinschmidt.—p. 292.
Hutchinson's Teeth. H. Davidsohn.—p. 295.
Traumatic Meningocele in Adult. C. Esser.—p. 296.
*Culture Medium for Diphtheria Bacilli. K. Klein.—p. 297.
Roentgen-Ray Treatment of Hypertrichosis. F. M. Meyer.—p. 297.
*Report of the Cologne Arsphenamin Commission. Meirowsky.—p. 299.
Dermatologic Hints for General Practitioners. M. Joseph.—p. 299.

Culture Medium for Diphtheria Bacilli.—While admitting that the Löffler serum furnishes a good nutrient medium for diphtheria cultures, Klein states that it has certain disadvantages: absolute sterilization is not possible; it is not clearly transparent; it is not mobile, and it is liquefied by certain germs. He has therefore prepared a medium which is being used in the Cologne Hygienic Institute and gives good satisfaction. Nine parts of blood serum and 1 part of a 15 per cent. solution of sodium hydroxid are kept at a temperature of 37 C. for forty-eight hours. The mixture is then neutralized with hydrochloric acid, mixed with 4 parts of nutrient agar and heated for half an hour at 105 C. Klein claims for his nutrient medium that it is sterilizable, transparent, stable, can be poured and requires very little blood serum.

Report of the Cologne Arsphenamin Commission.—Meirowsky states that the commission appointed to investigate arsphenamin accidents finds that the dosage plays a decided part in the occurrence of fatalities following its administra-

tion. As regards neo-arsphenamin, it was found that if a dosage of 0.6 gm. was never exceeded, the danger of a fatality was only 1:162,800, whereas in the case of hospitals and physicians that were in the habit of going beyond this dose (0.6 gm.) the danger was fifty-four times as great, namely: 1:3,000. Overdosage is one of the main causes also of cases of encephalitis and dermatitis. In all cases of dermatitis and in six out of ten cases of encephalitis overdosage could be shown to have been responsible. There seemed to be no special sex incidence. Almost half of the deaths occurred following either the second or third injection. However, the commission confirmed the frequently noted observation that a timid administration of the remedy or courses of treatment extending over too short a time favored the reappearance of nerve symptoms. A report on the untoward effects of silver arsphenamin is to follow.

Monatsschrift für Geb. und Gynäkologie, Berlin

July, 1920, 52, No. 1

*Import of Twisting of Umbilical Cord. A. Hochenbichler.—p. 1.
*Induced Premature Delivery. R. Grote.—p. 28.
*Reflex Isolated Paralysis of Colon. Quante.—p. 42.

Twisting of Cord as Sign of Separation of Placenta.—Hochenbichler has been making a special study of the behavior of the umbilical cord in 108 maternity cases. At the first contractions of the uterus in the third stage of labor, as the wall contracts under the placenta, blood is forced into the placenta and down into the cord, the distention from this in the spiral vessels of the cord causing it to writhe. This "pressure twisting" indicates that the placenta is still adherent. The first contraction after delivery is generally so vigorous that the wall contracting under the placenta usually pries it off, so that the most favorable moment for the separation of the placenta is thus the first four or five minutes of the after-birth stage. When the placenta is loose and starts on its passage out, it twists on its axis, and the cord twists to a certain extent with it. The placenta may turn at once to 180 degrees, and the effect of this on the cord is a reliable sign of progressing expulsion. He theorizes to explain the mechanism of the twisting of the placenta. In his 108 cases, the placenta was cast off within the first four minutes in 78.7 per cent. and no twisting of the cord from distention with blood was manifest. The twisting of the cord from twisting of the placenta can occur only with a detached placenta, and the cord usually slides down a little lower at the same time.

Premature Delivery with Contracted Pelvis.—Grote declares that not the duration of the pregnancy but the relative size of the fetus and the true diameter should form the criterion as to the date for inducing premature delivery with a true diameter of from 7.5 to 8 cm. or more. He measures the true diameter with the Zangemeister gage, and determines the size of the fetus by palpation. The moment for intervention is shown by a chart curve reproduced. The premature delivery is induced with the dilatable bag, and in the twenty-two cases of the kind, among the 1880 deliveries at the Marburg maternity in four recent years, the children were all delivered alive with the exception of one macerated fetus. In the forty-two previous childbirths of the same mothers, 20 per cent. of the children spontaneously delivered had died, and 50 per cent. of those requiring instrumental extraction. The details of the twenty-two cases are tabulated, including the effect at each application of the metreurynter. A true diameter of 7.5 cm. is regarded as the limit below which this system of management cannot be applied.

Isolated Paresis of the Colon of Inflammatory-Reflex Origin.—Quante describes the necropsy findings in a case of this kind following an attempt at criminal abortion.

Münchener medizinische Wochenschrift, Munich

May 14, 1920, 67, No. 20

*Vaccines in Influenzal Pneumonia. Baerthlein and Thoma.—p. 563.
The "Language" of Bees. K. von Frisch.—p. 566.
*Indications for Roentgenotherapy in Carcinoma. C. Müller.—p. 569.
*Strophanthin with Digitalis Treatment. Mory.—p. 570.
Increase of Morphin Addictions. E. Kahn.—p. 571.
*Turpentine in Inflammatory and Suppurative Processes. M. Mayer.—p. 572.
Liver Fever with Congenital Syphilis. A. Baer.—p. 572.

Bacteriotherapy in Influenzal Pneumonia.—Baerthlein and Thoma found intramuscular injections of autogenous vaccines efficacious in influenzal pneumonia.

Indications for Roentgenotherapy in Carcinoma.—Müller states that, contrary to the usual opinion, the variation in susceptibility to roentgen-ray treatment of carcinoma from patient to patient is not great. Taking the erythema skin dose at 100 per cent. as the standard, the range will lie between 90 and 110 per cent., which is not a wider variation than is found in the effect of roentgen irradiation of the normal skin in different patients. He thinks that in roentgenotherapy the main question—regardless of whether a tumor is operable or inoperable—is whether it is possible for the full carcinoma dose to be absorbed by the tumor and the endangered surroundings. If this is possible, then roentgenotherapy is justifiable in both operable and inoperable cases. If this is not possible, roentgenotherapy should not be considered either in operable or inoperable cases, in view of the danger of exciting a tumor to increased activity.

Intravenous Injections of Strophanthin in Relation to Digitalis Treatment.—Mory claims to have shown that strophanthin if given in carefully adjusted doses, beginning with only 0.25 or 0.5 gm., and injected slowly into the vein, a drop at a time, can be given with perfect safety along with digitalis. Before heeding these precautions, there had been three fatalities at the clinic, in the course of years, for which strophanthin seemed to be responsible. It often seems to supplement an otherwise inadequate effect from the digitalis. By means of strophanthin a crisis can sometimes be passed, and the ground gained by the strophanthin can then be held by continued doses of digitalis.

Oil of Turpentine in Inflammatory and Suppurative Processes.—On the basis of theoretic considerations and many years' experience in an extensive country practice, Mayer recommends the use of oil of turpentine internally in certain suppurative and inflammatory conditions; especially in empyema following resection, and in appendicitis when first-class surgical assistance is not available, and the patient's condition will not permit of his being removed to a hospital.

Therapeutische Halbmonatshefte, Berlin

April 1, 1920, 34, No. 7

*Progress in Treatment of Gonorrhea. O. Schwarz.—p. 193.
*Treatment of Toxicosis of Pregnancy. R. Freund.—p. 196.
Treatment of Epilepsy with Phenylethylbarbituric Acid. H. Kress.—p. 200.
*Recognition and Treatment of Melanosarcomas. G. Axhausen.—p. 203.
Drug Calciuria in Infant. Klotz.—p. 206.

Progress in Treatment of Gonorrhea.—Schwarz discusses the value of Weiss' method of treating gonorrhea by high temperatures. Gonococci are killed by a temperature of 107.6 F. and their growth is retarded by a temperature of from 102 to 104 F. The patients sit in a deep tub bath the temperature of which is gradually increased. In extreme cases a blood temperature of 109.4 is thus attained; but even when such high temperatures are not reached, it is claimed that a prompt cure of gonorrhea was effected by one or two baths. The treatment is well borne by carefully selected patients. Scholtz and Dunker, combining the Weiss method with injections and partial baths instead of full baths, have secured favorable results. Others have reported untoward incidents in connection with the treatment, especially in dealing with children. As for biologic methods, Schwarz finds that commercial gonococcus vaccines give good results, and says that autogenous vaccines are not as expeditious and are scarcely more efficacious than the polyvalent vaccines. Provocative tests are a valuable means of lending greater certainty to a doubtful diagnosis.

Treatment of Toxicosis of Pregnancy.—In cases of mild toxicosis (more especially hyperemesis, dermatoses, neuralgias) Freund recommends subcutaneous injections of from 180 to 200 c.c. of Ringer's solution at body temperature. In recurrences he advocates the repetition of the dose, or intravenous injection of from 20 to 30 c.c. of normal horse or human serum. In the severe types of toxicosis, especially eclampsia,

immediate extraction of the child is indicated at term if this can be brought about by mild measures, but in other cases, with inadequate dilatation of the cervix, bloodletting plus the Stroganoff prophylactic method of treatment should be carried out, and this method of management should be repeated at need to tide the patient along until the child is born, unless special exigencies of the case demand operative interference.

Recognition and Treatment of Melanosarcomas.—Axhausen reports three cases, with recovery, to show that melanosarcomas are often overlooked until they have reached an advanced stage, and urges, therefore, that we should pay more attention to pigmented nevi when making general examinations. If a prominent pigmented tumor differs from ordinary pigmented nevi in hardness, in its smooth surface, and its tendency to a bluish black color, it should be extirpated.

Wiener klinische Wochenschrift, Vienna

Aug. 5, 1920, **33**, No. 32

Otosclerosis in Relation to Tetany. H. Frey and K. Orzechowski.—p. 697. Cont'd.
Case of Peripheral Pressure Neuritis with Tetany. Beth.—p. 701.
Knee Joint Injuries in War. A. Brenner.—p. 703.
Anaerobic Infection Following Gunshot Injury of Lung. L. Schönbauer.—p. 706.
*Effect of Zuntz' Hair Stimulant. H. Fuhs.—p. 707.

Zuntz' Hair Stimulant.—See Current Comment, Sept. 11, 1920, p. 748.

Zeitschrift für Tuberkulose, Berlin

July, 1920, **33**, No. 4

*Danger from Bovine Tuberculosis. F. Schaeffer.—p. 193.
Prevalence of Tuberculosis in Cattle. W. Seifert.—p. 206.
Epidemiology of Tuberculosis. H. von Hayek.—p. 219.

Bovine Tuberculosis.—Schaeffer presents evidence that there has been no proportional increase in the numbers of cases of bovine tuberculosis in man during the war. Questionnaires sent to veterinarians have failed to show any increase in the number of cases of tuberculosis in cattle in Germany.

Zentralblatt für Gewerbehygiene, etc., Berlin

January, 1920, **8**, No. 1. Only medical articles listed

*Work, Fatigue and Accidents. E. Guth.—p. 1.
Protection of Workmen against Refrigerating and Lubricating Substances. H. F. Ziegler.—p. 11.
*Laying Dust in Transvaal Mines. Junghans.—p. 14.
Ropemakers' Cough. E. Ebstein.—p. 20.

Work, Fatigue and Accidents.—Guth points out the relations between fatigue in work and accidents, and proves statistically that accidents occur more frequently in the last working hours, being also of a more serious nature. Considering this increase in accidents, and the decrease in work done during the last working hours, he concludes that not only workmen, but also the employers have interest in reducing the number of working hours.

Removal of Dust in Transvaal Mines.—Junghaus states that the removal of dust and gases and the ventilation in mines should be considered as a whole. Water is the best factor to be used; it prevents dust, removes gases and cools the air. The spray should be extremely fine and under high pressure. In the Transvaal mines where the dust used to be tremendous and tuberculosis spreading fast, this system of water spraying to lay the dust has met with remarkable success, the death toll due to tuberculosis having fallen to one fifth.

Zentralblatt für Gynäkologie, Leipzig

June 26, 1920, **44**, No. 26

Intravenous Injections to Induce Twilight Sleep. C. Eisenberg.—p. 688.
Simplified Technic for Scopolamin Twilight Sleep. P. W. Siegel.—p. 693.
*Indications for Ventrifixation of Uterus. Ekstein.—p. 706.

Indications for Ventrifixation of the Uterus.—Ekstein discusses ventrifixation of the uterus as a palliative operation following unilateral adnexa operations for any cause. Unilateral extirpation of the adnexa, with the unavoidable peritonization of the stump, leads in the majority of cases to displacement of the uterus; the ligaments are shortened, and this entails usually retroversion or lateroversion. In view of the likelihood of displacement occurring after unilateral adnexa operations, Ekstein, for more than twenty-five years, has always supplemented them with ventrifixation, and has found that this method gives uniformly good results. He describes his technic in detail.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

July 31, 1920, **2**, No. 5

*Tumors in Cerebellopontile Angle. L. Muskens.—p. 380.
Pseudosenile Cachexia in Syphilitics. J. Roorda Smit.—p. 394.
Accommodation by Shifting the Spectacles. G. J. Schoute.—p. 403.
Lead Poisoning. H. A. Lubbers.—p. 409.

Cerebellopontile Tumors.—Muskens describes with illustrations a case in which a gliosarcoma as large as a goose egg in the cerebellopontile region was relieved by Cushing's technic, with the result that the impending blindness was warded off, and the woman of 27 had two months of relief. The first symptoms had been unilateral disturbance in hearing three years before; six months later vomiting, and after another year disturbance in gait. In a second case all the symptoms subsided during a course of roentgen-ray treatment, but Muskens warns that spontaneous remission with these tumors is not uncommon. However, the subsidence of the deafness, choked disk, atrophy of muscles and neuralgia in the face is certainly gratifying, but time alone will tell whether it is permanent. Agonizing trigeminal neuralgia had been the predominant symptom in one young man, but the incipient choked disk finally discovered (July, 1919), gave the clue to the tumor, and a scrap excised from an enlarged gland in the neck showed scanty karyokinesis. Three series of exposures were given, first by the nose, cheek, masseter and temple, with very hard rays, to the erythema dose, 30 H units; 190,000 voltage; filter, 0.5 mm. zinc. The second series, a month later, from the right and left sides of the neck; 20 H units. This was repeated a month later and, finally, after a two month interval, exposures exclusively on the left side of the neck where there had been some enlarged glands. The success surpassed the highest anticipations. Muskens reviews the history and literature on cerebellopontile tumors, saying of them, "In the last ten or fifteen years a silent drama has been acted before our eyes, or rather a deadly earnest game, where the stake is human lives and the counters are lost reputations of neurologists and surgeons."

Norsk Magazin for Lægevidenskaben, Christiania

August, 1920, **81**, No. 8

*Otogenous Pyemia, Sinus Phlebitis and Sinus Thrombosis. F. Lee gaard.—p. 745.
*Vincent's Angina. J. Voss.—p. 778.
Carrel-Dakin Treatment of Suppurating Lesions. N. A. Nicolaysen.—p. 786.
*Habitual Volvulus of Sigmoid Flexure. G. Schaanning.—p. 804.

Otogenous Pyemia.—Leegaard analyzes about twenty cases of otogenous pyemia with sinus phlebitis or sinus thrombosis. A metastatic abscess can develop in a muscle without any subjective symptoms. The patient should be palpated from head to foot every day to discover any lesion of the kind developing insidiously deep in a muscle. He advocates partial resection of the mastoid in every case of acute otitis in which the fever keeps up for a week after the drum membrane has been properly opened, even if there are no other symptoms. The only regret may be that the intervention had not been earlier.

Vincent's Angina.—Voss has recently had fifteen men and one woman in his service with Vincent's angina, and found that arsphenamin has an absolutely specific action. He applied it to the ulcerations twice a day in a 2 per cent. glycerin solution, and healing was complete in from two to six days.

Habitual Volvulus of Sigmoid Flexure with Megacolon.—In Schaanning's two cases there had been symptoms for some time suggesting intermittent partial obstruction, and finally fatal ileus. Necropsy explained this by a very long and large loop with a tendency to volvulus, which had evidently recurred and corrected itself from time to time.